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REPORT

1921/22 - 1925/26

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1922

5 vol. in 1.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1923



Load of waney-board white pine timber cut on Sturgeon River watershed, season 1921.

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Report of the Minister of Lands and Forests of the Province of Ontario

For the Year Ending 31st October, 1922.

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

In pursuance of the provisions of the Public Lands Act I have the honour to submit for the information of Your Honour and the Legislative Assembly a report for the fiscal year ending the 31st day of October, 1922, with respect to the proceedings and transactions of the Department of Lands and Forests.

It affords me pleasure to announce as a preface to the detailed data following that the revenue in timber operations and land transactions during the year has been the largest in the history of the Province, exceeding that of the preceding year by over \$400,000.

An outline of the scope of the undertakings of the Department and the functions of each Branch disclose the variety and importance of the services rendered.

As the name implies, there are two outstanding and somewhat distinct units of the Department, viz, "Lands" and "Forests", but these embrace in the application of the Acts and Regulations the rendering of services not directly expressed in either term, such as extensive building of roads and generous assistance to settlers.

Under the heading of "Lands" come:

(A) *Surveys, Sales, Leases, Locations and Grants of Agricultural lands*, the *placing of settlers* and the general disposition of all Crown areas for *Ranching, Summer Resorts, Fur Farming, Transmission Lines, Mill Sites, Water Lots* and numerous other purposes.

(B) *Water Powers*: The leasing of same for commercial and industrial purposes at annual rentals based upon h.p. developed and sold.

(C) Public Parks such as Algonquin, Quetico and Rondeau—great Provincial natural recreation grounds and protectors and propagators of wild game and bird life, also conservers of timber and possessors of great opportunities for the study of technical forest problems.

(D) *Loans and Advances* to settlers covering seed grain, feed and stock; Experimental Farms; Creameries; Dairy Co-operative Societies.

(E) Building of Colonization and Northern Ontario Trunk and side roads to meet needs of settlers.

Under the heading of "Forests" come:

(A) Cruising, surveying and estimating timber and pulpwood areas.

(B) Selling and disposing of timber limits.

(C) Measurement of timber and the collection of all charges resulting from the issue of timber licenses and from bush operations.

(D) Forest Fire Protection.

(E) Reforestation.

LAND TRANSACTIONS.

Notwithstanding the more or less general tendency of the individual in Old Ontario to trek from the rural to urban fields, the newer and northern part of the Province holds its own reasonably well in its attractiveness to the pioneer settler. The Great Clay Belt traversed by the Transcontinental is being acquired by the man who is prepared to break the way for the future users of that productive section.

A considerable number of colonists have purchased farm holdings on the line between Cochrane and Hearst. The prospective opening in the near future of the pulp mill at Kapuskasing, with its attendant town population, has given an additional impetus to the settlement movement and substantial development on bush lots in the way of cutting and clearing has resulted.

A determined effort has been made towards concerted settlement rather than indiscriminate allocation of land. Certain tiers in townships contiguous to the line of railway have been opened rather than the whole townships, and settlers have been required to limit their selections within more circumscribed areas.

This system, besides conducing towards more effective community life, proves more economic in the building of roads and caring for the needs of settlers in the way of checking up the work done and assisting them in more speedily getting clearance for timber cut or approval of improvements made.

Each section in Northern Ontario succeeded in getting a fair share of those who located or purchased land. The sum of \$189,549.68 was received from the sale of agricultural lands and townsites with Crown Leases.

Regular inspections of holdings have been made with a view to eliminating the spurious holder or speculator in timber or pulpwood.

Important assistance has been rendered to settlers because of fire loss or crop failures and it is most satisfactory to indicate that the returns payable on loans to cover advances are being splendidly made and reflect credit on the patience and industry of the well-intentioned producer in the newer parts.

Details as to land sales and collections are as follows:

CLERGY LANDS.

But a small area of these lands still exist in the Crown and during the year 100 acres was sold for \$50.00, while the sum of \$613.87 was collected on account of former sales.

COMMON SCHOOL LANDS.

Practically all such lands have been long since alienated, although isolated cases still arise where parties are clearing title, and from this source \$1,013.60 was collected.

GRAMMAR SCHOOL LANDS.

Some 99.38 acres of these lands were sold for \$178.88 and the sum of \$538.40 was collected.

UNIVERSITY LANDS.

These lands, as the heading implies, are set apart for the support of the University, and the area sold was 2,155 acres, for \$1,077.50, while the total revenue from such sources was \$2,080.37.

CROWN LANDS.

For agricultural and townsite purposes 132,188.12 acres were sold and the total collections on these and former sales were \$114,975.11.

The total area leased amounted to 15,409.05 acres and rentals collected from leaseholders to \$57,175.06.

FREE GRANTS.

There has been a marked increase during the year in the area of land located as free grants; a total number of 1,013 persons selected land as compared with 858 last year. The tendency to more intensive farming on smaller areas has reduced the individual farm area from 136 acres to 130 acres. The privilege of purchasing additional land adjacent to their farms has been taken by a larger number of settlers, but the areas are somewhat less as stated above. The previous year only 136 settlers increased their holdings by this means, but during the present year 177 parties purchased a total area of 5,954 acres.

There were 135,656 acres located and 460 patents were issued covering 64,813 acres to settlers who have cleared and put under actual cultivation the required area on their homesteads.

SETTLERS ON PURCHASED LANDS.

The demand for land by bona-fide settlers shows a marked increase, with the result that it has been necessary to open new areas for sale and an increase in the area sold. Lands in the vicinity of Kapuskasing in the Townships of O'Brien, Owens, Williamson and Nansen, along the Transcontinental Railway, have been opened during the year, and in this particular area 12,131 acres have been sold, and the demand still continues. The extension of the T. & N. O. Railway line has caused an increase in the already great demand for land in the Cochrane agency, but the adjacent agencies of Matheson and Hearst still lead in the number of actual settlers.

During the year 894 persons purchased land, an increase of over one hundred and fifty. It was found that a number of parties were holding land, apparently for speculative purposes, and they were required to either continue settlement or dispose of their interests to actual settlers, with the result that 549 persons were granted permission to assign their interests, covering an area of 75,102 acres, as compared with 314 persons the previous year. This land was sought by those expressing the intention of becoming actual farmers and the balance of the purchase price paid in full in each case.

Naturally as time goes on the demand for free grants of land by returned soldiers decreases, as they are rapidly becoming established in other lines of business. This year, however, there were 219 locations of 160 acres each granted to returned men, or a total of 35,040 acres.

Patents were granted covering 43,119 acres to 328 settlers who had met the required building and clearing conditions.

RANCHING LANDS.

There is a constantly growing request for land for ranching and pasture purposes as a result of the policy adopted by the Department of leasing these lands at five cents per acre per annum with easy conditions as to stocking. Farmers who have their farms practically all under grain crops are acquiring additional areas and enlarging their activities to that of sheep and cattle raising.

Rough land more adapted for ranching or pasture has been largely taken up for this purpose, and during the year Leases and Licenses of Occupation have issued, covering 8,200 acres.

Numerous inquiries have been received for marsh or low-lying lands for the purpose of raising muskrats and other fur-bearing animals. This promises to be an industry which may make valuable lands that at the present time have practically no market value.

Licenses of Occupation were issued for fur farming in the townships of Eric and Genoa, District of Sudbury, and for a parcel of land west of the Township of Strange in the District of Thunder Bay, containing 2,520 acres.

MILITARY GRANTS

Under Act 1 Edward VII, Cap. 6, and amendments thereto, there have been issued 13,998 Military Certificates. Notwithstanding the fact that the date for receiving applications for these grants expired in September, 1908, a large number of inquiries regarding certificates have been received.

As a result of legislation this year, limiting the time in which to locate to the 30th April next, a larger percentage of the outstanding certificates are being located or surrendered to the Crown.

During the year 22 of these certificates have been located on 3,473 acres, making a total of 8,413 certificates actually located on land.

Few certificates are being surrendered for the \$50.00 commutation money, as the land which may be located is worth more than the commutation value of the certificates. There were, however, six surrendered in this manner.

There were 240 acres purchased by three certificates being applied in payment thereof, making a total of 803 certificates which have been thus applied on land.

Of the locations already made under certificates 42 patents were issued during the year, making a total of 7,530 certificates which have been thus disposed of by the Department.

A large area, 4,334 acres, which had been located to 30 veterans who neglected to perform settlement duties within the time required by the Act, was cancelled and the land redeemed by the Crown.

There are still 1,510 certificates outstanding.

During the last session of the Legislature an amendment to the Veterans' Act was passed providing that no locations of land will be made after the 30th day of April, 1923. After a lapse of twenty years it was deemed advisable to place a time limit upon the selection and allocation of land for the purposes of the Act. Any certificate thereafter may, however, be surrendered to the Crown for a cash consideration of \$50.00, or accepted as payment for Crown land at its face value of \$80.00.

It is confidently predicted that the amendment will conduce towards the return of several hundred certificates by the end of the time limit for locating.

COLLECTIONS.

The total revenue of the Department from all sources, which was the largest ever received, amounted to \$4,439,340.03, being over \$400,000.00 more than that of the preceding year. The sale of Agricultural Lands and Townsites, with Crown Leases, including Provincial Parks, etc., amounted to \$189,549.68; Casual Fees \$2,118.95; Refund Items \$66,239.43. From Woods and Forests

the Revenue was \$4,181,431.97, made up of the following items: Bonus \$1,446,-351.31; Timber Dues \$2,315,668.17; Ground Rent \$103,179.09; Transfer Fees \$6,295.00; Fire Protection \$309,938.40. (See Appendix No. 4, page 26.)

DISBURSEMENTS.

The total Expenditure, less Civil Government, of the Department for all services (exclusive of those rendered under the Northern and North-Western Ontario Development Acts, for which see Appendices Nos. 47, 48 and 49), was \$2,399,175.22. Some of the more important items were: Crown Lands Agents' Salaries and Disbursements \$22,803.85; Homestead Inspectors \$28,423.00; Crown Timber Agents \$41,452.56; Fire Ranging \$684,585.62; Forest Ranging and Measurement of Timber \$299,616.18; Reforestation \$151,216.63; Algonquin Provincial Park \$42,450.97; Quetico Provincial Park \$13,401.05; Rondeau Provincial Park \$12,975.12; Surveys \$154,856.61; Colonization Roads \$671,184.48; Commissions re Sundry Investigations \$33,556.07; Litigation of Constitutional and Other Questions \$34,895.57; Aerial Surveys \$15,000.00; Special Warrants \$71,221.88; Clearing Townsites and Removing Fire Hazards \$11,070.42. (Additional details are found in Appendix No. 6.)

TIMBER REVENUE.

From all sources in connection with the administration of the Timber Resources the sum of \$4,181,431.97 was collected, the largest amount ever collected in the history of the country. This sum is in excess of the unprecedented record of last year by over \$400,000.00.

It should be noted that while the accruals for the past year approximated only \$3,000,000, collections were greater by over \$1,000,000, the difference being accounted for by a payment of some \$400,000, resulting from the Court action of the Crown against the Shevlin-Clarke Company and by a close check upon outstanding accounts and a follow-up system of collection.

Notwithstanding the somewhat trying and uncertain market conditions obtaining during the earlier part of the fiscal year, the dealers and operators, prompted by a desire to co-operate with the Crown in its desire to maintain a regular revenue, responded splendidly. In certain cases, rather than force a company to the wall because of an inability to finance its operations, the Crown, without impairing its security, made provision to meet the situation.

LOG OPERATIONS.

As pointed out in last year's report a number of the smaller operators, because of the depression in the lumber market, considered the financial outlay for heavy bush operations too hazardous, and in consequence their output was limited, while certain larger operators in some instances, apprehending a continuation of the precarious market, restricted their cutting. Such narrowing operations, naturally justified, are reflected in the following figures.

Throughout the year only 247,554,350 feet B.M. pine for sawlogs, boom and dimension timber, was cut, or approximately 90,000,000 feet less than the previous year. Sawlog timber, other than pine, was taken out to the extent of 57,311,922 feet B.M., or nearly 10,000,000 feet less than during the year 1921. Boom and dimension timber other than pine accounted for 2,266,461 feet B.M. For piling 102,162 lineal feet and 73,339 feet B.M. were cut.

Tie production was much lower than for the two years immediately preceding, only 1,755,419 having been taken, as against 4,001,471 for 1922 and over 6,000,000 for 1920. The decreased figures are due to lack of new railway construction, uncertainty in connection with tie contracts and the requirement in new sales that ties shall be sawn and not hewn, the latter for the most part being taken out, measured on a B.M. basis and included in the log returns. (See Appendix No. 7, page 34.)

The more or less pessimistic lumber outlook that prevailed in the latter part of 1921 and continued for a considerable part of 1922 has given way to an optimistic one, which I consider will be amply reflected in the returns of the coming year, the indications pointing in the direction of a much heavier logging operation this coming winter.

Pulpwood: The quantity of pulpwood cut subject to Crown dues totalled some 289,113 cords, scarcely one-third of that covered in 1921, but this reduction in cordage was not unexpected. In addition to this quantity 415,304 cords were cut free of Crown Dues, this having been taken from patented lands or those held by settlers with proper improvements. The peak market price of pulpwood during the war and continuing some time thereafter gave an impetus to large contracts extending over several seasons and abnormal cuts by individuals in the expectation that the market price would stand. A lowering of the price with a large unsold stock on hand from 1920 and 1921 lessened activities in pulpwood regions.

There has been an improved tone in the pulp and paper industry and the tendency is towards a steadier and upward market.

By the end of the present year, or in the early weeks of the year 1923, two new mills are expected to be in operation, one at Kenora, resulting from the English River sale in 1920 and the other at Kapuskasing as a result of the arrangement consummated with the Spruce Falls Company in 1920.

The Provincial Paper Mills, Limited, by virtue of an agreement entered into with the Government in pursuance of the sale of the Nipigon Timber Limit in 1920, are operating their mill at Port Arthur.

For ready reference and future use in comparisons I am furnishing in this report, as promised in my last year's summary, a tabulated statement of all the timber sales made throughout the year, giving such details as to area, price, purchaser and other features that may be useful. (See Appendix No. 51.) A compilation of timber sales or transactions is being prepared to cover a reasonable period of the past, which shall serve as a permanent record of the Department.

Lands under License: The area covered by License at the end of the fiscal year, 31st October, 1922, was 17,289½ square miles, subject to a ground rent of \$5.00 per square mile. This was less by 2,500 square miles than the year 1921.

SUMMARY OF TIMBER REVENUE.

Bonus.....	\$1,446,351 31
Timber Dues.....	2,315,668 17
Ground Rent.....	103,179 09
Transfer Fees.....	6,295 00
Fire Protection.....	309,938 40
	<hr/>
	\$4,181,431 97

CULLERS' EXAMINATION.

Two examinations were held during the year, one at Callander and one at Fort Frances, on the 3rd day of October, 1922.

Six candidates successfully passed the examination and were duly granted licenses authorizing them to act as Cullers.

(For names of Cullers who passed at this examination, see Appendix No. 10, page 38.)

(For complete list of Licensed Cullers see Minister's Reports for 1917, 1918, 1919, 1920 and 1921).

TIMBER COMMISSION.

The Timber Commission appointed in March, 1920, to report on the administration of the timber resources of the Province, published three interim reports, as stated in last year's Departmental report and submitted its main or final report in June 1922.

The report has been regularly printed and speaks for itself.

As a result of or during the Timber Investigation a sum approximating \$122,000 was collected as trespass and over-run charges.

From a monetary point of view the fact should not be overlooked that in addition to this amount the Crown succeeded in its court action against the Shevlin-Clarke Company, which action was instituted following an interim report of the Commissioners on the Timber Investigation.

The decision of the Court declared that the Agreement made by the Ontario Government with Shevlin-Clarke in respect of berths 45 and 49 Quetico Reserve was illegal and held that the company should pay, instead of \$7 per M ft. B.M. for the pine, \$17.60 per M ft. B.M. Doyle Rule, in addition to Crown Dues.

This difference in the rate meant a payment to the Crown of approximately \$170,000, to cover the increased rate on the timber cut, and approximately \$900,000 on the timber still remaining to be cut under the estimates made, so that the decision of the Court in respect of these berths will ultimately add to the Crown's revenue more than \$1,000,000 above that which would have come had the investigation not proceeded and the case not been instituted.

Two other court actions were contemplated against the Shevlin-Clarke Company, one to recover certain monies alleged by the Crown to have been due it from the Company because of too great an over-run, and a second action was instituted with a view to having the Court declare invalid the sale of berth 51 to the Company.

A settlement was reached whereby the Company agreed that in consideration of the withdrawal of the action against it, the sum of \$250,000 cash would be paid. The agreement closed out all the actions including that of the Company which proposed to proceed with its appeal against the Crown in the case of berths 45 and 49. Under an Act of the Legislature, being Cap. 20, 12—13 George V, the agreement and licenses of the Company were duly confirmed.

CROWN SURVEYS.

Survey of Crown lands in the northern part of the Province, consisting of base and meridian lines, township boundaries, lake and river traverse, have been carried on in compliance with the several instructions issued.

The survey of the Ontario-Manitoba boundary line was also continued to the twelfth base line of Dominion surveys in Manitoba.

Certain large islands have been subdivided for summer resort purposes and additional park lots were laid out at Rondeau Park and Presqu'île Park. The town plot subdivisions of lands patented since 1910 have been approved pursuant to R.S.O. 1910, chapter 34, as follows:

Timmings Addition. South-east quarter of south half of lot 12, concession 3, Township of Tisdale, District of Cochrane.

Timmings Addition. Part of broken lot 2, concession 2, Township of Mountjoy, District of Cochrane.

Hornepayne. Township of Wicksteed, District of Algoma.

Kirkland Lake Addition. (Wright and Hargreaves subdivision) Township of Teck, District of Timiskaming.

MUNICIPAL SURVEYS.

Pursuant to sections 15, 16 and 17 of the Surveys Act, petitions for the re-survey of lines laid out under competent authority have been received from the Corporations of the Municipalities of:

Township of Beckwith,

Township of Clinton,

County of Lincoln (Townships of Niagara and Grantham).

Surveys performed and confirmed were:

Durie Street, City of Toronto,

First Concession road allowance Township of Clinton.

Detailed reports of the several surveys will be found in Appendices 20 to 42 inclusive.

PROVINCIAL PARKS.

More and more each year is emphasized the wisdom and foresight in segregating wild natural areas as forest preserves, playgrounds and sanctuaries for the preservation of our forests, our game and fur-bearing animals.

The Department in its effort to give the people a faint idea of the value of Ontario's natural resources, installed the second annual display at the Canadian National Exhibition, a photograph of which is reproduced and shown on page 132.

The public showed its approval of the display by a record-breaking attendance, the spaces surrounding the exhibit being packed with a dense throng of interested spectators from early morning until closing time at night.

A picturesque log cabin, typical of the forest ranger's home, snugly set against a background of Ontario's natural forest trees, pine, spruce, balsam and birch trees, mingled together into one harmonious picture. It was a section of the great Northland's out-of-doors, rocks, trees and water, and wild animals, grouped together in its quaint effect; in other words the out-of-doors from the primeval Northland was brought down and installed indoors, affording the multitude an opportunity to view and inhale the aroma of the wildwood and greenwood.

The public school teachers of the city embraced the opportunity to bring the children to view these object lessons, many times more impressive and more interesting than those derived from cold print. The beaver pond proved a never-ending source of interest, the family of seven live beaver from Algonquin Park, playing and chasing each other through and under the water, and at meal time sitting up and holding a small birch stick between their fore-paws, contentedly gnawing at their favourite food, the bark of poplar and birch.

Part of the exhibit consisted of live deer, silver foxes, wild turkeys and pheasants from the Rondeau Park preserve, and sections of trees cut down by

the industrious beaver. A live wild timber wolf, captured in Algonquin Park, was shown for the first time in captivity. A part of the exhibit which proved very interesting was the display of the various kinds of pulpwood used in paper manufacture. Indian guides were also there making birch-bark canoes and snow-shoes.

The whole exhibit proved most interesting and educative, and won favourable commendation from visitors from all parts of the world, and from the Board of Directors of the Canadian National Exhibition.

COLONIZATION ROADS.

The sum of \$671,184.48 was spent upon Colonization Roads, or \$165,000 more than the previous year. Those outlying sections of the Province that do not benefit from the Provincial Highway system, that are yet for the most part unsold and unpatented, must of necessity be accorded treatment justly due to the pioneers, and consequently both organized and unorganized municipalities received the advantage of this expenditure. New roads were built, old ones repaired, bridges constructed and maps prepared and plans devised for proposed improvements.

For detailed expenditure see Appendix No. 46.

NORTHERN DEVELOPMENT BRANCH.

A sum of \$2,010,153.23 was expended for development purposes in Northern and North-western Ontario. Of this amount \$1,603,148.53 was expended upon the construction, maintenance and repair of roads and bridges, or slightly under eighty per cent of the total amount expended. The balance, \$407,004.76 was used to advance settlement and colonization, included in which was the making of loans to settlers through the Settlers' Loan Commissioner.

The report of the Branch will be found on pages 159 to 202 inclusive, Appendices 47 and 48 and that in connection with Settlers' Loans, on pages 207 and 208, Appendix 49.

FORESTRY BRANCH

FOREST SURVEY.

With a view to ascertaining the types of timber upon certain of our hitherto uncruised and unestimated stretches of country, the Forestry Branch conducted careful, systematic and expert cruises, using standard machines and collaborating with experienced ground parties.

Two most important surveys and estimates that will have far reaching results are, first—one covering a portion of the James Bay watershed, lying between Cochrane and Moose Factory, and the other an extensive block comprising over 5,000 square miles in the Sudbury and Algoma Districts.

An excellent example of quickly, accurately and economically segregating and mapping different types is found in the James Bay Report (see Appendix No. 50).

FOREST FIRE PROTECTION.

During the past season a change was made in the field organization of the region south of the French River. This territory, known as the Ottawa-Huron region and comprising 10,000,000 acres, was divided into three districts and placed under technical forest engineers.

Improvement Work: The Forestry Branch is rapidly installing an overhead system of lookout towers and telephone communication, in order to secure quick detection of fires. 175 miles of telephone lines and 28 lookout towers were constructed this last season. Several hundred miles of roads and trails were opened and cleaned out; landing docks made for boats and canoes; camping grounds made in several places; and signs put up directing travellers as to good camping sites.

During the past season the following new structures were put up—38 rangers' cabins, three store houses, one car house, one boat house and two oil houses for the storage of gasoline and oil.

Mechanical Equipment: Until a few years ago fire fighting in the woods was done by rangers with shovels and mattocks, carrying water to the fires with ordinary buckets. To-day our organization has a large number of portable gasoline engines and pumps which carry from 500 to 1,000 feet of hose. These small portable pumps have proven of great value; in many cases saving the entire cost of all pumps purchased up to date. During the last season 16 of these portable pumps with fire-fighting hose were secured.

For supervision of forest fire protection along railways and territory adjacent thereto, gasoline power motor cars have been of great assistance. During the past season seven of these power motor cars were purchased.

On many of the larger waters, power motor boats are being installed for better protection. During the past season three power motor boats were purchased.

I wish to point out that organized, modern forest fire protection requires an over-head quick method of detecting fires at their inception, and then improved mechanical equipment for reaching and successfully fighting them. A considerable proportion of our expenditure for several years must be in the nature of permanent improvements and should be classed as CAPITAL EXPENDITURE.

Air Patrol: During the past season, through an arrangement with the Air Board, about ten million acres were patrolled by seaplanes. It is the opinion of the Forestry Branch staff that air patrol must be used as a factor in reaching a solution of forest protection.

The fact of the air-craft working over a district has a very salutary effect on the people using the woods; secures quick and accurate detection of fires and often permits of landing and actually extinguishing them.

Daily flights of two machines were made, one flying out of Parry Sound, and one out of Whitney.

Slash Disposal: Some reasonable solution of the slash disposal problem is one of the most pressing needs in connection with fire protection.

During the last season our field officers have been able to secure considerable burning of slash at hazardous points in timber operations through the co-operation of the operators. I believe that the timber operators on the whole are prepared to co-operate with the Department in any reasonable slash disposal regulations. This question of regulations can only be carried out in a satisfactory manner through the direction of the district officers, as slash disposal is a local problem.

Forest Fires: During the past season two very bad weather periods developed, namely, during May and September.

1021 fires occurred and of these 539 did not exceed five acres in size, and 799 did not exceed 100 acres in size. In other words we feel that the organization is locating fires early and doing good work in extinguishing them quickly. While exaggerated newspaper reports might indicate a very bad forest fire season in Ontario, such is not the case. The total acreage burned was 346,000, which is the smallest since 1918.

When we consider a forest region of 100,000,000 acres under protection, our total acreage loss will compare very favourably with that of any similar area in America.

Southern Clay Belt Fire: Reference should be made to the fire which swept over a portion of the Southern Clay Belt on October 4th, 1922.

This fire passed over an area, over 90 per cent. of which has left the Crown. The area has developed into a fine farming region, and this fire could scarcely be designated as a forest fire, although numerous small bush and clearing operations aided in carrying the fire. Throughout the region numerous clearing fires were burning during late September. A terrific wind arose on October 4th, after several days of very dry weather, and within a few hours hundreds of fires had swept everything before them. This fire passed over areas which have been cleared and partly under cultivation for over twenty years.

The details of this fire are contained in a special report, following an investigation by the Provincial Fire Marshal. This report was published by The King's Printer in December, 1922.

REFORESTATION.

The older more settled portions of Ontario present two outstanding problems in relation to reforestation.

1. The protection and improvement of the present privately owned woodlands and the reforesting of the small privately owned waste lands unsuited for agriculture.

2. The reforesting, through provincial and municipal effort, of the larger waste land areas scattered throughout older Ontario.

Many districts in older Ontario have less than five per cent. of woodland left and the solution of this problem is of vital importance to agricultural Ontario. Throughout Western Europe, where the demand for land to produce food crops is most pressing, from 15 to 20 per cent. of forest cover is maintained.

Provincial Forest Stations: The policy of establishing demonstration forest stations in the larger waste land areas was adopted in 1908, when the Norfolk Station was started. We believe that with the development of several of these stations in the larger waste land areas as demonstrations and sources of planting material, a great incentive will be given to both private and municipal reforestation projects.

Nurseries: The Norfolk Station has in the past produced the nursery stock for distribution throughout the Province, as well as that for local use.

At this nursery we now have the following plants one and two years old:

Coniferous or Evergreens:

(Chiefly Red, White and Scotch Pine, White Cedar and Spruce).....14,900,000

Hardwoods:

(Ash, Elm, Maple and Walnut)..... 596,000

Total.....15,496,000

This nursery has developed from an output of 500,000 plants to a capacity of several millions.

Plantations: A little over 500 acres of demonstration plantations have been made at this station. The oldest plantations (13 years old) are now from 24 to 25 feet high. The educational effect of these on the locality is shown by the increasing demand for planting material from private owners who visit this station.

Prince Edward County Station: Two years ago a forest station was opened at the Sand Banks in the above County. This is a sand formation of about 600 acres which was owned by the Crown. Owing to the formation of dunes this sand area was becoming a menace to adjacent farm lands.

During the past season some 500,000 willow and poplar cuttings were planted in order to check the moving sand.

Orono Forest Station: During the past season this forest station was opened. One hundred and fifty acres of light land was acquired adjacent to the village of Orono, in the County of Durham. Throughout this district there is considerable land adapted to reforestation, and this station will eventually take care of the requirements of the district for nursery stock in addition to providing demonstration plantations. Seed bed ground has been prepared and 200,000 seedlings from Norfolk have been planted.

Midhurst Forest Station: One thousand acres of sand land have been secured at Midhurst, Simcoe County, where a Provincial forest station is being established.

This land was at one time covered with a pinery and much of it is still covered with stumps.

Clearing up land for nursery purposes was carried out last autumn and 375,000 one-year-old seedlings were put out in nursery lines.

Municipal Reforestation Projects: Through legislation passed in 1921 the Province is enabled to co-operate with county and township municipalities in establishing municipal forests. The municipalities secure the land and the Province carries out the planting.

In the case of *County projects*, where large areas are involved, the Province undertakes the management and care during the earlier years.

In the case of *Township projects*, which are of a smaller size and in the form of demonstration plantations, the Province bears the cost of planting, and the local authorities look after maintenance. Twelve demonstration township plantations were started last season.

The following County project has been started:

Simcoe County: 1,000 acres of cut-over pine land was purchased by the County. Last season 60 acres was reforested. Local nursery was opened and 1-year-old material supplied from the Norfolk Nurseries.

Distribution of Planting Material: The Department supplies free of cost forest planting material to land-owners throughout the Province. Forest plantations have been started in all of the older counties during the past few years.

Last season's distribution of trees was as follows:

Private land owners.....	327,732
Municipal and Provincial projects.....	731,500
Total.....	1,059,232

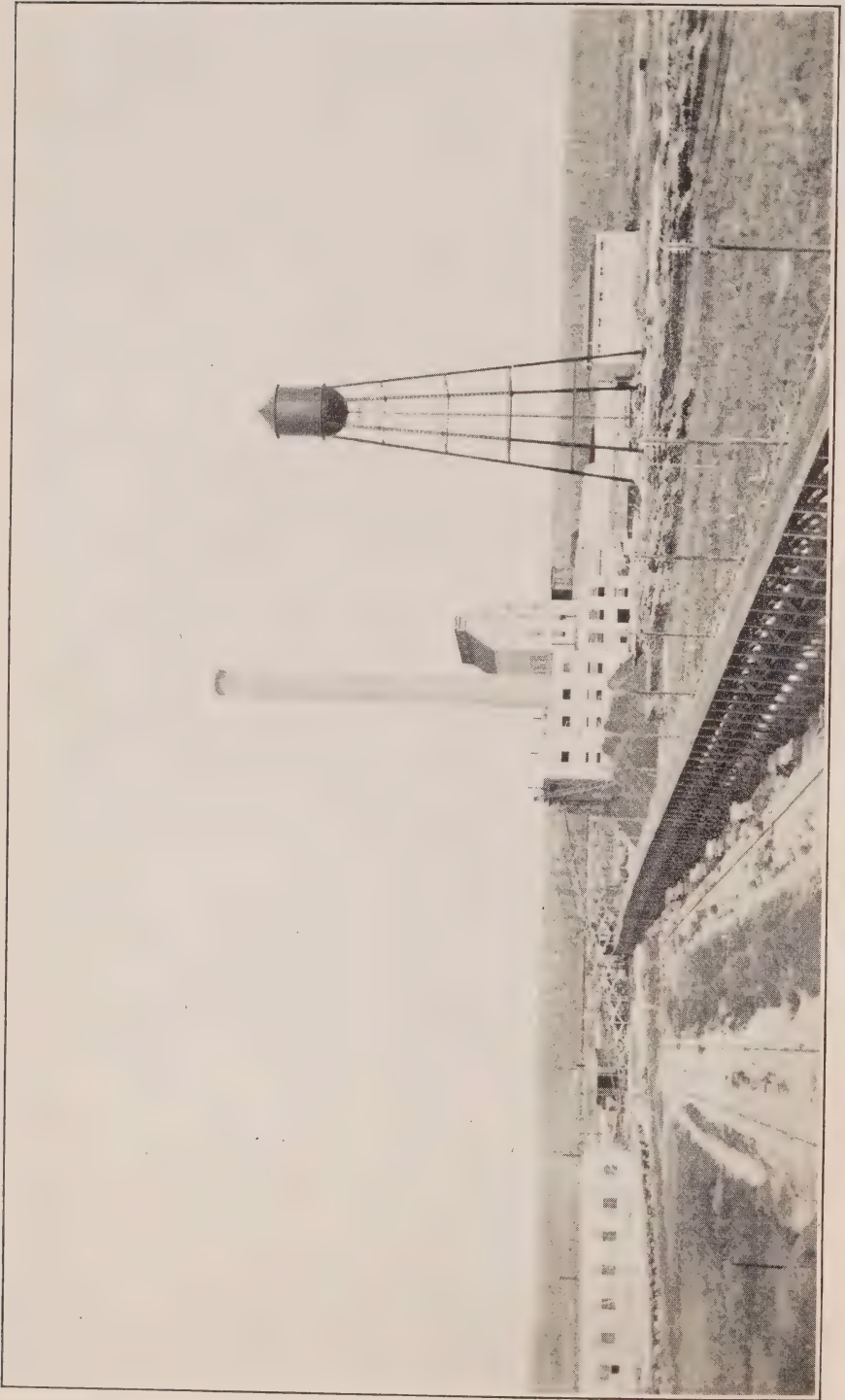
The annual distribution *previous* to last season averaged about 500,000 plants. Our present output has been doubled, and I expect that by the spring of 1924 the output will reach several million plants per year. During the past season an inspection was made of 448 plantations. About 84 per cent. of these plantations are reported as having been successful.

Seed Collection: An effort has been made to secure our forest seed supply from local sources. A seed collecting centre was established at Angus, in Simcoe County, where the Department secured a building at Camp Borden for seed extraction purposes.

Seeds of the native Pines, Spruces and Cedar, collected.....	1,334 lbs.
Seeds of hardwood as Walnut, Ash, Maple and Elm, collected.....	1,065 bushels.

BENIAH BOWMAN,
Minister.

Department of Lands and Forests,
Toronto, October 31st, 1922.



Sulphite pulp mill, Kapuskasing, Spruce Falls Co., to be running by end of calendar year.

APPENDICES

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1922.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Lands Branch.	Hon. B. Bowman	Minister.	1919, Nov. 14	\$6,000 00	
	W. C. Cain	Deputy Minister.	1903, Mar. 1	5,100 00	
	F. J. Niven	Minister's Secretary and Secretary to the Department.	1897, May 27	3,000 00	
	F. E. Titus	Solicitor to Department.	1920, Mar. 2	3,500 00	
	M. E. Bliss	Senior Clerk Stenographer.	1909, Aug. 16	1,300 00	
	E. Harrison	"	1920, May 14	1,100 00	
	R. P. Ferguson	"	1918, April 2	1,200 00	
	A. J. Allan	Clerk Stenographer.	1921, May 2	975 00	
	B. Lankin	Office Boy.	1921, Jan. 14	775 00	
	S. Draper	Chief Clerk.	1900, May 1	2,850 00	
	W. R. Ledger	Principal Clerk.	1894, Feb. 15	2,300 00	
	C. E. Burns	"	1897, July 29	2,300 00	
	W. S. Sutherland	Senior Clerk.	1900, Mar. 18	1,900 00	
	J. B. Proctor	"	1897, Jan. 15	1,900 00	
	J. E. Drinkwater	"	1915, Oct. 19	1,800 00	
	A. E. Roe	"	1906, Oct. 16	1,800 00	
	F. W. Bindon	"	1915, Jan. 26	1,600 00	
	F. A. Lucas	Clerk.	1906, Dec. 18	1,700 00	
	S. A. Platt	"	1905, June 12	1,700 00	
	S. Mulholland	"	1918, May 6	850 00	
	M. Bengough	Senior Clerk Typist.	1896, Oct. 23	1,300 00	
	E. F. O'Neil	"	1902, July 7	1,200 00	
	S. Ross	Senior Clerk Stenographer.	1917, July 9	1,200 00	
	E. G. Halliday	"	1907, Feb. 21	1,200 00	
	B. M. Benson	"	1909, May 25	1,200 00	
	E. Hills	"	1912, July 2	1,200 00	
	E. Singleton	Clerk Stenographer.	1917, April 16	1,050 00	
	A. E. Robillard	Engrossing Clerk.	1894, May 4	1,600 00	
	B. Chambers	Clerk Stenographer.	1917, April 24	900 00	

Died July 8th, 1922.

			Transferred from Department of Mines, Jan. 1, 1922.	
Surveys Branch...	L. V. Rorke.....	Director of Surveys.....	1909, May 1	4,400 00
	J. Hutchison.....	Inspector of Surveys.....	1913, April 1	3,300 00
	H. C. Smith.....	Cartographer.....	1919, Dec. 12	2,400 00
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct. 16	2,400 00
	J. Work.....	Principal Clerk.....	1909, May 18	2,000 00
	H. Treeby.....	Map Draughtsman.....	1896, June 25	1,900 00
	B. Rushford.....	".....	1910, Jan. 24	1,800 00
	F. E. Blanchet.....	".....	1906, May 15	1,800 00
	A. Leman.....	".....	1907, Sept. 12	1,800 00
	E. M. Jarvis.....	Senior Clerk.....	1897, April 25	1,800 00
	W. A. Hewitt.....	".....	1921, May 2	1,500 00
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July 21	1,200 00
	E. C. Arner.....	".....	1909, Aug. 6	1,100 00
	C. O'Connor.....	Clerk Typist.....	1907, Oct. 16	900 00
	E. J. Zavitz.....	Provincial Forester.....	1912, Nov. 7	4,600 00
Forestry Branch...	C. R. Mills.....	Assistant Provincial Forester.....	1921, Mar. 28	3,150 00
	F. S. Newman.....	Forester.....	1913, Oct. 1	2,300 00
	J. Houser.....	Head Clerk.....	1905, July 17	2,550 00
	H. D. Gillard.....	Principal Account Clerk.....	1897, Dec. 6	2,100 00
	W. F. Trivett.....	".....	1900, June 25	2,100 00
	N. L. Rogers.....	Senior Account Clerk.....	1911, Aug. 1	1,800 00
	A. H. O'Neil.....	Senior Clerk.....	1906, July 19	1,700 00
	G. W. Harris.....	Clerk.....	1906, Sept. 1	1,500 00
	E. H. Telfer.....	".....	1915, Sept. 27	1,600 00
	S. D. Meeking.....	".....	1910, Feb. 8	1,600 00
	E. H. Squire.....	".....	1916, Jan. 4	1,400 00
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May 1	1,200 00
	S. O. Dennis.....	".....	1910, Mar. 2	1,100 00
	J. Bald.....	".....	1913, June 12	1,200 00
	J. McCort.....	Clerk Stenographer.....	1918, Feb. 28	1,050 00
Accounts Branch...	V. M. Bassford.....	".....	1920, June 1	900 00
	J. Ferguson.....	Junior Clerk Stenographer.....	1919, Aug. 4	900 00
	A. S. McKyes.....	Clerk Stenographer.....	1921, May 9	975 00
	D. M. Hastings.....	".....	1920, April 28	1,050 00
	H. M. Lount.....	Accountant.....	1903, Oct. 1	2,700 00
	C. J. Clarke.....	Senior Clerk.....	1905, Aug. 9	1,900 00
	W. A. Burritt.....	".....	1907, Sept. 24	1,700 00
	R. Gordon.....	Clerk.....	1912, July 30	1,500 00
	C. Bowland.....	Senior Clerk Typist.....	1908, July 9	1,200 00
	M. A. Whyte.....	Clerk Typist.....	1921, June 1	975 00
	C. C. Johnson.....	Clerk.....	1921, May 16	1,300 00

Resigned Aug. 31, 1922.

Resigned May 15, 1922.

Appendix No. 1.—Concluded.

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1922.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Records Branch....	S. K. Burdin.....	Head Clerk.....	1916, April 6	2,500 00	
	A. Ferguson.....	Senior Clerk.....	1915, Dec. 15	1,700 00	
	C. Dies.....	Clerk.....	1905, Oct. 2	1,500 00	
	F. Samuels.....	".....	1903, Dec. 5	1,500 00	
	C. W. St. John.....	".....	1906, July 9	1,400 00	
	W. B. Baines.....	".....	1912, April 9	1,500 00	
	I. T. Lee.....	".....	1917, June 25	1,500 00	
	N. B. Mathewson.....	".....	1915, May 7	1,400 00	
	H. Brophy.....	Senior Clerk Messenger.....	1898, Oct. 1	1,300 00	
Colonization Roads Branch.....	C. H. Fullerton.....	Superintendent.....	1915, Oct. 15	4,400 00	
	C. H. Meader.....	Road Engineer.....	1912, June 14	2,700 00	
	M. P. Doherty.....	Principal Clerk.....	1898, May 1	2,100 00	
	A. Gamey.....	Account Clerk.....	1915, July 19	1,300 00	
	W. T. Axford.....	Junior Clerk.....	1910, July 11	1,000 00	

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1922.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
<i>Land Agents.</i>					
Arthur, E.	Espanola Mills.	Part District of Sudbury.	1915, June 1	\$500 00	For salary see Homestead Inspectors
Baker, R. H.	Minden.	Part Victoria.	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard.	Part District of Temiskaming.	1913, Aug. 1	1,200 00	
Both, C.	Denbigh.	Part of Frontenac and Addington.	1905, Oct. 20	200 00	
Blank, Frank.	Wilno.	Part District of Renfrew.	1921, Apr. 1	500 00	
Brown, John.	Markstay.	" Nipissing and Sudbury.	1916, July 3	600 00	
Brown, J. B.	Bracebridge.	Muskoka District.	1905, July 28	.....
Cameron, W.	Stratton Station.	Part District of Rainy River.	1911, May 8	500 00	
Campbell, I. M.	Parry Sound.	" " Parry Sound.	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie.	" " Algoma.	1920, Nov. 18	300 00	
Dempsey, S. J.	Cochrane.	" " Cochrane.	1911, Feb. 1	1,100 00	For salary see Homestead Inspectors
Dodds, T.	Thessalon.	" " Algoma.	1915, May 1	500 00	
Douglas, W. J.	Maynooth.	Part Hastings.	1912, June 1	500 00	
Ellis, H. J.	Powassan.	Part District of Parry Sound.	1909, May 20	500 00	
Freeborn, Dr. J. S.	Magnetawan.	" " " "	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden.	" " Kenora.	1914, Dec. 5	1,000 00	
Hales, W.	Apsey.	Part County of Peterborough.	1911, July 17	250 00	
Hollands, C. J.	Fort Frances.	Part Township of Alberta and District of Rainy River.	1892, Oct. 12	300 00	
Holland, H. E.	Kenora.	Part District of Kenora.	1921, Jan. 1	600 00	
Lockhart, J.	Pembroke.	Part Renfrew.	1922, Feb. 16	300 00	
McFayden, A.	Eno.	Part District of Rainy River.	1905, Sept. 8	600 00	Retired from office February 16, 1922.
MacLennan, J. K.	Sudbury.	" " Sudbury.	1905, July 3	700 00	
Mills, J. E.	Matheson.	" " Cochrane.	1921, Aug. 1	1,200 00	
O'Donnell, J. L.	Hearst.	" " " "	1921, May 3	800 00	
Parsons, W. J.	North Bay.	" " Nipissing.	1908, Apr. 8	1,000 00	
Philion, J. A.	Sturgeon Falls.	" " " "	1907, Sept. 13	500 00	
Small, R.	Mattawa.	" " " "	1910, July 1	500 00	
Teasdale, R. A.	Massey.	" " Sudbury.	1917, July 1	600 00	
Thaw, D.	Emsdale.	" " Parry Sound.	1919, July 2	500 00	
Watt, F.	Pembroke.	Part Renfrew.	1913, May 28	300 00	
Whybourne, W. E.	Marksville.	Part St. Joseph Island.	1905, Apr. 7	300 00	

Appendix No. 2.—*Concluded.*

List of Agents for the year ending October 31st, 1922.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
Wilson, A. N.....	Kinnmount.....	Part District of Peterborough.....	1915, May 6	175 00	
Wilson, S. H.....	Port Arthur.....	" " Thunder Bay.....	1921, Nov. 26	1,200 00	
Woolleys, J.....	Englehart.....	" " Temiskaming.....	1908, July 13	800 00	
McArthur, T. A.....	North Bay.....	Inspector of Crown Lands Offices.....	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
<i>Homestead Inspectors.</i>					
Barr, J. C.....	Fort Frances.....	District of Rainy River.....	1906, Dec. 1	1,500 00	
Bastien, J. A.....	Chelmsford.....	W. part of Sudbury District.....	1913, May 12	1,200 00	
Brown, J. B.....	Bracebridge.....	Muskoka District.....	1905, July 28	1,100 00	Also Crown Lands Agent.
Cragg, W. V.....	New Liskeard.....	S. part of Temiskaming District.....	1913, Apr. 1	1,500 00	
Dean, Thos.....	Sault Ste. Marie.....	Algoma District.....	1908, Aug. 3	900 00	Also Crown Lands Agent.
Hughes, T.....	Murillo.....	Thunder Bay District.....	1908, July 29	1,400 00	
Jervis, H. F. J. W.....	Callander.....	District of Parry Sound.....	1920, June 10	1,500 00	
Owens, H. B.....	Cache Bay.....	E. part Sudbury and W. part Algoma Districts.....	1918, July 1	1,000 00	
Smith, D.....	Cochrane.....	N. Part of Temiskaming District.....	1912, Apr. 24	1,800 00	
Van Horn, L. E.....	Monteith.....	Part Temiskaming and Algoma Districts.....	1920, Jan. 27	1,600 00	
Watson, T. P.....	Englehart.....	Centre part of Temiskaming District.....	1905, May 10	1,500 00	
Wigle, R. G.....	Dryden.....	Kenora District.....	1914, June 1	1,500 00	
<i>Timber Agents.</i>					
Christie, W. P.....	Parry Sound.....	Part Parry Sound and Muskoka Districts.....	1903, Dec. 4	1,700 00	
Hawkins, S. J.....	Webbwood.....	Part Algoma and Sudbury Districts.....	1905, Aug. 16	1,900 00	
Huckson, A. H.....	Sault Ste. Marie.....	Part District of Algoma.....	1914, Apr. 1	2,300 00	
Larose, S. C.....	Ottawa.....	Part Ottawa District.....	1890, May 8	1,800 00	
MacDonald, S. C.....	New Liskeard.....	Part Temiskaming District.....	1907, Jan. 1	2,200 00	
McDonald, A.....	Fort Frances.....	Rainy River District.....	1916, Aug. 7	1,600 00	Retired from office April 7, 1922.
McDougall, J. T.....	North Bay.....	Nipissing and part Sudbury Districts.....	1908, July 1	2,300 00	
Spence, D. J.....	Cochrane.....	Part Temiskaming and Algoma Districts.....	1920, Dec. 1	2,300 00	
Stevenson, A.....	Peterborough.....	Belleville District.....	1905, Oct. 4	1,900 00	
Wood, W. G. A.....	South Porcupine.....	Porcupine District.....	1917, Mar. 1	1,600 00	

H. M. LOUNT,
Accountant.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1922.

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
		\$ c	\$ c
<i>Lands Sold:</i>			
Agricultural and Townsites.	132,188.12	102,422 57	114,975 11
Clergy Lands.	100.00	50 00	663 87
Common School Lands.	270.00	378 00	1,013 60
Grammar School Lands.	99.38	178 88	538 40
University Lands.	2,155.00	1,077 50	2,080 37
<i>Lands Leased:</i>			
Crown.	15,392.15	8,876 88	55,618 06
Temagami.	16.90	190 00	1,557 00
	150,221.55	113,173 83	176,446 41

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 4.

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1922.

Service.	\$ c	\$ c	\$ c
LAND COLLECTIONS.			
<i>Crown Lands:</i>			
Agricultural.....	97,416 44		
Townsites.....	17,558 67	114,975 11	
Clergy Lands.....	663 87		
Common School Lands.....	1,013 60		
Grammar School Lands.....	538 40		
University Lands.....	2,080 37	4,296 24	
			119,271 35
<i>Rent:</i>			
Crown Leases.....		53,763 99	
Algonquin Provincial Park.....		1,562 67	
Temagami Leases.....		1,557 00	
Sand and Gravel.....		291 40	
			57,175 06
WOODS AND FORESTS.			
Bonus.....		1,446,351 31	
Timber Dues.....		2,315,668 17	
Ground Rent.....		103,179 09	
Transfer Fees.....		6,295 00	
Fire Protection.....		309,938 40	
			4,181,431 97
<i>Parks:</i>			
Algonquin Provincial Park.....		6,683 25	
Rondeau Provincial Park.....		5,174 02	
Quetico Provincial Park.....		1,246 00	
			13,103 27
Casual Fees.....		1,676 95	
Cullers' Fees.....		256 00	
Forest Reserves Guides' Fees.....		186 00	
			2,118 95
REFUNDS.			
Fire Ranging.....		9,726 06	
Forest Ranging.....		52,146 92	
Special Survey of Ontario and Manitoba Boundary Line.....		3,200 00	
Reforestation.....		544 85	
Contingencies, Lands.....		303 80	
Surveys.....		186 00	
Agents' Salaries.....		131 80	
			66,239 43
			4,439,340 03

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1922, which are considered as Special Funds.

Service.	\$ c.	\$ c.
<i>Clergy Lands.</i>		
Principal.....	395 40	663 87
Interest.....	268 47	
<i>Common School Lands.</i>		
Principal.....	731 07	1,013 60
Interest.....	282 53	
<i>Grammar School Lands.</i>		
Principal.....	337 18	538 40
Interest.....	201 22	
<i>University Lands.</i>		
Principal.....	1,404 16	2,080 37
Interest.....	676 21	
		\$4,296 24

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1922.

Service.	\$ c.	\$ c.	\$ c.
AGENTS' SALARIES AND DISBURSEMENTS.			
<i>Land, \$22,803.85</i>			
Arthurs, E		500 00	
Baker, R. H.....	350 00		
Disbursements.....	7 30	357 30	
Blank, F.....	500 00		
Disbursements.....	201 50	701 50	
Both, C.....		200 00	
Bolger, J. W.....	1,200 00		
Disbursements.....	334 00	1,534 00	
Brown, John.....	600 00		
Disbursements.....	35 99	635 99	
Cameron, W.....	500 00		
Disbursements.....	50 00	550 00	
Campbell, Miss I. M.....	500 00		
Disbursements.....	150 00	650 00	
Dean, T.....	300 00		
Disbursements.....	155 70	455 70	
Dempsay, S. J.....	1,100 00		
Disbursements.....	129 90	1,229 90	
Dodds, T.....	500 00		
Disbursements.....	17 25	517 25	
Douglas, W. J.....	500 00		
Disbursements.....	21 25	521 25	
Ellis, H. J.....		500 00	
Freeborn, J. S.....	500 00		
Disbursements.....	26 50	526 50	
Gibson, J. E.....	1,000 00		
Disbursements.....	183 90	1,183 90	
Hales, W.....	250 00		
Disbursements.....	19 75	269 75	
Holland, H. E.....	600 00		
Disbursements.....	606 50	1,206 50	
Hollands, C. J.....	300 00		
Disbursements.....	140 00	440 00	
McFayden, A.....	600 00		
Disbursements.....	46 85	646 85	
<i>Carried forward.....</i>		12,626 39	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		12,626 39	
<i>AGENTS' SALARIES AND DISBURSEMENTS—Continued.</i>			
<i>Land—Concluded.</i>			
MacLennan, J. K.....	700 00		
Disbursements.....	119 00		
		819 00	
Mills, J. E.....	1,200 00		
Disbursements.....	144 60		
		1,344 60	
O'Donnell, J. L.....	800 00		
Disbursements.....	242 50		
		1,042 50	
Parsons, W. J.....	1,000 00		
Disbursements.....	223 00		
		1,223 00	
Philon, J. A.....	500 00		
Disbursements.....	38 49		
		538 49	
Small, R.....	500 00		
Disbursements.....	36 75		
		536 75	
Teasdale, R. A.....	600 00		
Disbursements.....	17 96		
		617 96	
Thaw, D.....		500 00	
Watt, F.....	88 15		
Lockhart, J.....	210 68		
Disbursements.....	9 50		
		308 33	
Whybourne, W. E.....	300 00		
Disbursements.....	9 25		
		309 25	
Wilson, A. N.....	175 00		
Disbursements.....	6 00		
		181 00	
Wilson, S. H.....	1,116 44		
Kurki, Miss A.....	182 69		
Disbursements.....	471 05		
		1,770 18	
Woollings, J.....	800 00		
Disbursements.....	186 40		
		986 40	
<i>Homestead Inspectors, \$28,423.00.</i>			
Barr, J. C.....	1,500 00		
Disbursements.....	1,202 05		
		2,702 05	
Bastien, J. A.....	1,200 00		
Disbursements.....	1,198 30		
		2,398 30	
Brown, J. B.....	1,100 00		
Disbursements.....	639 28		
		1,739 28	
Cragg, W. V.....	1,500 00		
Disbursements.....	543 60		
		2,043 60	
<i>Carried forward</i>		31,687 08	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		31,687 08	
<i>AGENTS' SALARIES AND DISBURSEMENTS—Continued.</i>			
<i>Homestead Inspectors.—Concluded.</i>			
Dean, T.....	900 00		
Disbursements.....	510 10	1,410 10	
Hughes, T.....	1,400 00		
Disbursements.....	1,065 90	2,465 90	
Jervis, H. F. J. W.....	1,500 00		
Disbursements.....	818 65	2,318 65	
Owens, H. B.....	1,000 00		
Disbursements.....	1,883 45	2,883 45	
Smith, D.....	1,800 00		
VanHorn, L. E.....	1,600 00		
Corke, A.....	385 00		
Disbursements.....	1,889 98	5,674 98	
Watson, T. P.....	1,500 00		
Disbursements.....	869 75	2,369 75	
Wigle, R. G.....	1,500 00		
Disbursements.....	916 94	2,416 94	
<i>Timber, \$41,452.56.</i>			
Alexander, J. A.....	2,920 00		
McDonald, A.....	697 38		
McLeod, Miss R.....	438 46		
Disbursements.....	805 22	4,861 06	
Christie, W. P.....	1,700 00		
Disbursements.....	449 81	2,149 81	
Hawkins, S. J.....		1,900 00	
Huckson, A. H.....	2,300 00		
McDougall, Miss M.....	782 31		
Disbursements.....	1,049 28	4,131 59	
McCaw, J. G.....	2,712 00		
MacCrindle, Miss I.....	1,043 06		
Hurdman, G. C.....	23 00		
Disbursements.....	498 69	4,276 75	
McDougall, J. T.....	2,300 00		
Disbursements.....	848 79	3,148 79	
MacDonald, S. C.....	2,200 00		
Disbursements.....	352 53	2,552 53	
Milway, J. H.....	2,504 00		
Godfrey, Miss S.....	960 00		
Disbursements.....	1,068 46	4,532 46	
<i>Carried forward</i>		78,779 84	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		78,779 84	
AGENTS' SALARIES AND DISBURSEMENTS— <i>Continued.</i>			
<i>Timber—Concluded.</i>			
Smith, J. D. C.....	2,504 00		
Brunsel, Miss E. L.....	977 91		
Disbursements.....	1,534 22	5,016 13	
Spence, D. J.....	2,300 00		
Disbursements.....	1,030 84	3,330 84	
Stevenson, A.....	1,900 00		
Disbursements.....	689 78	2,589 78	
Whelan, P. J., disbursements.....		513 31	
Wood, W. G. A.....	1,600 00		
Disbursements.....	849 51	2,449 51	
<i>Miscellaneous, \$2,279.72.</i>			
Green, H. P., Caretaker of Islands in Charleston Lake.	50 00		
Disbursements.....	2 65	52 65	
Jamieson, W. H., Caretaker of Islands in Dog and Laboria Lakes.....		50 00	
McDonald, H., disbursements.....		56 00	
McNichol, T. E., inspecting Township of Nansen.....		102 00	
Nash, Jas., inspecting Township of Nansen.....		102 00	
Sheppard, H. E., disbursements.....		14 65	
Stuart, Joseph, services as Supervisor of Wellington Beach.....		50 00	
McArthur, T. A., Inspector of Agencies.....	900 00		
Disbursements.....	952 42	1,852 42	
OTTAWA AGENCY.			94,959 13
Larose, S. C., Acting Agent.....		1,800 00	
Rent.....	700 00		
Disbursements.....	190 47	890 47	
CULLERS' ACT.			2,690 47
Legris, J. P., disbursements.....		46 25	
McDougall, J. T., disbursements.....		23 00	
Milway, J. H., disbursements.....		39 42	
108 67			
<i>Carried forward</i>			97,758 27

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>			97,758 27
FIRE RANGING.....			684,585 62
FOREST RANGING.....			299,616 18
FOREST RESERVES.....			6,340 36
REFORESTATION.....			151,216 63
ALGONQUIN PROVINCIAL PARK.....			42,450 97
QUETICO PROVINCIAL PARK.....			13,401 05
RONDEAU PROVINCIAL PARK.....			12,975 12
SURVEYS.....			154,856 61
COLONIZATION ROADS.....			671,184 48
BOARD OF SURVEYORS.....			200 00
GRANT TO CANADIAN FORESTRY ASSOCIATION.....			3,000 00
ANNUAL MEMBERSHIP FEES.....			39 97
INSURANCE.....			1,497 67
COMMISSIONS RE SUNDRY INVESTIGATIONS.....			33,556 07
LITIGATION OF CONSTITUTIONAL AND OTHER QUESTIONS.....			34,895 57
AERIAL SURVEYS.....			15,000 00
ALLOWANCE SCHOOL SECTION, S. WALSINGHAM.....			150 00
WORKMEN'S COMPENSATION.....			2,406 46
UNFORSEEN AND UNPROVIDED.....			302 50
SPECIAL WARRANTS.			
Clearing Lands at Kapuskasing.....		15,409 11	
Clark, Dr. Judson F.....		1,019 05	
Legal Fees and Expenses.....		54,793 72	
			71,221 88
MISCELLANEOUS.			
Law Society of Upper Canada, fees.....			20 00
REFUNDS—Miscellaneous.....			24,037 52
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....			11,070 42
BEACH AND SHORE PROTECTION.....			5,000 00
DISPLAY AT TORONTO EXHIBITION.....			985 44
MOVING EXPENSES OF OFFICIALS.....			170 38
VETERANS' COMMUTATION.....			300 00
<i>Carried forward</i>			2,338,239 17

Appendix No. 6—Concluded.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>			2,338,239 17
CONTINGENCIES, ETC.			
<i>Departmental.</i>			
Printing and Binding.....	2,845 22		
Stationery.....	12,091 77	14,936 99	
Express and Cartage.....	695 42		
Postage.....	2,902 32	3,597 74	
Telegraphing.....	1,254 02		
Car Fare.....	72 00		
Livery.....	142 75	1,468 77	
Subscriptions.....	230 14		
Advertising.....	7,302 52	7,532 66	
Typewriters, repairs and inspections.....		1,272 05	
Bowman, Hon. Beniah, travelling expenses.....	750 00		
Cain, W. C., " ".....	66 20		
Niven, F. J., " ".....	104 10		
Titus, F. E., " ".....	81 50		
Rorke, L. V., " ".....	419 15		
Hutcheon, J., " ".....	581 51		
Work, J., " ".....	94 53		
O'Neil, A. H., " ".....	73 40		
Zavitz, E. J., " ".....	179 90		
Tilley, Johnston Co., legal fees.....	350 00	2,700 29	
Extra Clerks.....	9,645 19		
Maps.....	13,013 31		
Sundries.....	378 85	23,037 35	
			54,545 85
COLONIZATION ROADS CONTINGENCIES.			
Printing and Binding.....	524 18		
Stationery.....	1,216 19	1,740 37	
Postage.....	192 38		
Express.....	12 65	205 03	
Telegraphing.....	24 56		
Subscriptions.....	18 79		
Typewriter, repairs and inspections.....	60 00	103 35	
Fullerton, C. H., travelling expenses.....	721 95		
Meador, C. H., " ".....	877 17		
Niven, F. J., " ".....	56 70	1,655 82	
Extra Clerks.....	2,565 18		
Sundries.....	120 45	2,685 63	
			6,390 20
			2,399,175 22

For particulars of expenditure of the Northern Development Branch see Appendix No. 48.

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix

FORESTRY

Statment of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				
		Pine.		Other.		
	Square Miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.
Western Timber District.....	11,979	6,618,556	218,869,821	1,310,516	43,562,743	34,149
Belleville Timber District.....	465½	43,105	786,991	77,471	2,992,380	138
Ottawa Timber District.....	4,845	378,819	23,175,872	361,865	10,756,799	1,656
	17,289½	7,040,480	242,832,684	1,749,852	57,311,922	35,943

General Statement

Agencies.	Shingle Bolts.	Cedar Lineal feet.	Cedar Posts	Tele-graph Poles.	Pulp-wood.	Railway Ties.		
	Cords.		Pieces.	Pieces.	Cords.	Pieces.	Transfer Fees.	Interest.
Western Timber District.....	207		45,865	12,440	267,132	1,738,958	\$ 5,615 00	\$ 55,961 46
Belleville Timber District.....		2,178	6,448	3,465	26	9,880	185 00	453 60
Ottawa Timber District.....			4,212	5,222	21,955	6,581	495 00	1,088 30
	207	2,178	56,525	21,127	289,113	1,755,419	6,295 00	57,503 36

JOHN HOUSER,
Chief Clerk in Charge.

No. 7.

BRANCH

Rent and Bonus during the year ending 31st October, 1922.

DESCRIPTION OF TIMBER.

Boom and Dimension.			Piling.				Cordwood.		Tan Bark.
Pine.	Other.						Hard.	Soft.	
Feet B.M.	Pieces.	Feet B.M.	Pieces.	Lineal Feet.	Pieces.	Feet B.M.	Cords.	Cords.	Cords.
4,481,462	14,803	1,637,610	2,831	102,162	867	73,339	1,897	25,127	205
24,392	793	189,386	.....	.....	.....	.....	20	.....	37
215,812	2,972	439,465	.....	.....	.....	.....	.....	5,285	29
4,721,666	18,568	2,266,461	2,831	102,162	867	73,339	1,917	30,412	271

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber Dues.	Bonus.	Deposit Timber Sales.	Ground Rent.	Fire Protection.	Total.
\$ c	\$ c	\$ c	\$ c	\$ c	\$ c	\$ c
48,302 71	1,080,512 35	1,147,950 27	130,650 00	75,348 76	275,541 53	2,819,882 08
3,279 82	8,152 24	209 27	25 00	4,175 00	5,263 00	21,742 93
793 58	95,085 99	.....	.....	22,925 00	29,133 87	149,521 74
52,376 11	1,183,750 58	1,148,159 54	130,675 00	102,448 76	309,938 40	2,991,146 75

W. C. CAIN,
Deputy Minister.

Appendix No. 8.

PATENTS OFFICE (Lands Branch).

Statement of Patents, etc., issued from 1st November, 1921, to October 31st, 1922.

Public Lands (late Crown).....	472
" " (late School).....	10
" " (late Clergy Reserves).....	3
" " (University).....	17
Free Grant Lands (Act of 1913).....	350
" " (Act of 1901) Veterans.....	42
Mining Lands (Patents).....	313
Mining Leases.....	263
Water Power Leases.....	4
Crown Leases.....	130
Licenses of Occupation.....	117
Timagami Islands Leases.....	9
Sand and Gravel Licenses.....	29
Pine Patents.....	3
Quarry Claims.....	9
Total.....	1,771

CHAS. E. BURNS,
Clerk of Patents.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 9.

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending October 31st, 1922.

Amount of Western Collections at Department.....	\$3,960,896	23
" Belleville " " " 	19,256	61
" Ottawa " " " 	201,279	13
	<u>\$4,181,431</u>	<u>97</u>

WOODS AND FORESTS.

Bonus.....	\$1,446,351	31
Timber Dues.....	2,315,668	17
Ground Rent.....	103,179	09
Transfer Fees.....	6,295	00
Fire Protection.....	309,938	40
	<u>\$4,181,431</u>	<u>97</u>

WOODS AND FORESTS REVENUE.

October 31st, 1922.

WESTERN DISTRICT—

Timber dues.....	\$2,102,199	89
Bonus.....	1,315,579	59
Ground rent.....	75,348	76
Interest, timber dues.....	55,489	34
Interest, ground rent.....	472	12
Transfer fees.....	5,615	00
Timber sale deposit.....	130,650	00
Fire protection.....	275,541	53
	<u>\$3,960,896</u>	<u>23</u>

OTTAWA DISTRICT—

Timber dues.....	\$147,636	96
Ground rent.....	22,925	00
Interest, timber dues.....	914	43
Interest, ground rent.....	173	87
Fire protection.....	29,133	87
Transfer fees.....	495	00
	<u>201,279</u>	<u>13</u>

BELLEVILLE DISTRICT—

Timber dues.....	\$9,058	29
Bonus.....	96	72
Ground rent.....	4,175	00
Interest, timber dues.....	369	26
Interest, ground rent.....	84	34
Fire protection.....	5,263	00
Transfer fees.....	185	00
Timber sale deposit.....	25	00
	<u>19,256</u>	<u>61</u>
	<u>\$4,181,431</u>	<u>97</u>

H. M. LOUNT,

Accountant.

JOHN HOUSER,

Chief Clerk in Charge.

W. C. CAIN,

Deputy Minister.

Appendix No. 10.

Memorandum of parties who passed the Cullers' Examination in 1922.

Cox, G. B., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Dingwall, Alex., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Kirton, William, Pakesley, examined at Callander on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Lester, Hiram L., Kippewa, Quebec, examined at Callander on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Mullin, L. J., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Smith, Cecil S., McDougall's Mills, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

JOHN HOUSER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. 11.

Statement of the Work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1922.

Veteran Patents issue.....	42
Locations under Military Certificates.....	22
Certificates applied in payment of lands.....	3
Certificates surrendered for commutation money.....	6

J. B. PROCTOR,
Clerk in Charge.

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 12.

RECORDS BRANCH, 1921-1922.

Communications received:

From Crown Lands Agents.....	9,598
" Crown Timber Agents.....	4,877
" Mining Recorders.....	2,703
" Homestead Inspectors.....	4,073
" Superintendent Algonquin Park.....	318
" Superintendent Quetico Park.....	136
" Superintendent Rondeau Park.....	135
Orders-in-Council.....	224
Telegrams.....	143
Northern Development Branch (figures supplied by them).....	9,742
Loan Commissioner (figures supplied by them).....	8,007
Forestry Branch (figures supplied by them).....	20,494
Colonization Roads (figures supplied by them).....	3,949
All other sources.....	33,597

Total incoming (Minister's Office not included)..... 97,996

Communications sent out:

To Crown Lands Agents, Inspectors and Park Superintendents.....	28,567
" General public.....	23,891
Circular letters <i>re</i> timber sales.....	7,563
Maps and blue prints.....	5,500
Northern Development Branch (figures supplied by them).....	11,002
" " " Seed Grain, (figures supplied by them).....	404
Loan Commissioner Letters (figures supplied by them).....	12,635
Forestry Branch, Letters (figures supplied by them).....	9,344
" " Parcels by post (figures supplied by them).....	484
" " Calendars (figures supplied by them).....	10,000
Colonization Roads, Letters (figures supplied by them).....	3,410

Total outgoing (Minister's Office not included)..... 112,800

Postage:

Postage for the year, Records Branch.....	2,194 33
" " Loan Commissioner.....	410 00
" " Forestry Branch.....	350 00
" " Colonization Roads.....	250 00

Files:

New Files issued, General.....	5,351
" " Accounts chargeable.....	647
" " Accounts free.....	282

S. K. BURDIN,
Chief Clerk, Records Branch.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 13.

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Free Grant Townships during the year ending 31st October, 1922.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Baxter.....	Muskoka.....	J. B. Brown,	.....	.....	1	$\frac{87}{110}$	1	100	4	332
Brunel.....	"	Bracebridge..	2	$146\frac{1}{2}$	.....	.....	1	100	1	100
Cardwell.....	"	"	1	62	.....	.....	1	62	1	200
Chaffey.....	"	"	.....	.....	.....	.....	.....	.....	2	151
Draper.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Franklin.....	"	"	3	902	2	45	4	402	3	492
Freeman.....	"	"	1	25	.....	.....	.....	.....	1	137
Macaulay.....	"	"	1	100	.....	.....	1	100	.....	.....
Medora.....	"	"	1	100	.....	.....	1	100	1	195
Monck.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Morrison.....	"	"	.....	.....	.....	.....	1	285	3	287
Muskoka.....	"	"	2	110	2	$12\frac{1}{2}$	2	76	1	12
McLean.....	"	"	1	100	.....	.....	1	100	.....	.....
Oakley.....	"	"	3	326	.....	.....	3	239	.....	.....
Ridout.....	"	"	.....	.....	.....	.....	.....	.....	1	200
Ryde.....	"	"	3	471	.....	.....	1	100	.....	.....
Sherbourne....	Haliburton...	"	2	251	.....	.....	1	205	.....	.....
Sinclair.....	Muskoka.....	"	2	174	.....	.....	3	374	3	593
Stephenson....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Stisted.....	"	"	.....	.....	1	4	.....	.....	1	104
Watt.....	"	"	.....	.....	.....	.....	.....	.....	2	197
Wood.....	"	"	1	100	9	38	3	399	2	234
Blair.....	Parry Sound..	Miss I. M. Camp- bell, Parry Sound	1	100	2	99	.....	.....	1	96
Burpee.....	"	"	1	102	.....	.....	.....	.....	1	$193\frac{3}{4}$
Carling.....	"	"	5	610	4	$119\frac{1}{4}$	5	610	5	496
Christie.....	"	"	3	281	.....	.....	2	271	4	677
Conger.....	"	"	6	683	1	103	2	244	3	282
Cowper.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Foley.....	"	"	1	100	.....	.....	.....	.....	.....	.....
Ferguson.....	"	"	.....	.....	.....	.....	.....	.....	1	200
Hagerman.....	"	"	2	359	.....	.....	1	91	.....	.....
Harrison.....	"	"	.....	.....	.....	.....	.....	.....	2	26
Henvey.....	"	"	3	264	1	7	1	103	3	$541\frac{1}{2}$
Humphrey.....	"	"	.....	.....	1	73	1	99	2	$186\frac{1}{2}$
McConkey.....	"	"	3	287	.....	.....	.....	.....	3	377
McDougall.....	"	"	3	292	.....	.....	.....	.....	1	$192\frac{8}{100}$
McKellar.....	"	"	1	100	.....	.....	1	200	.....	.....
McKenzie.....	"	"	2	190	.....	.....	1	100	4	437
Monteith.....	"	"	.....	.....	.....	.....	.....	.....	1	200
Shawanaga....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Wilson.....	"	"	12	2,030	1	10	1	81	1	145
Chapman.....	Parry Sound..	Dr. J. S. Freeborn, Maganetawan	2	400	1	2	1	200	3	358
Croft.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Ferrie.....	"	"	.....	.....	.....	.....	1	100	.....	.....
Gurd.....	"	"	3	293	.....	.....	2	300	6	1,016
Lount.....	"	"	3	477	1	4	.....	.....	2	99
Machar.....	"	"	6	698	1	35	3	299	3	340
Mills.....	"	"	19	2,368	5	244	1	100	4	478
Pringle.....	"	"	7	710	3	122	.....	.....	4	498
Ryerson.....	"	"	2	246	.....	.....	2	245	1	200
Spence.....	"	"	3	202	3	$151\frac{1}{2}$	5	850	1	201
Strong.....	"	"	.....	.....	1	84	.....	.....	3	$596\frac{8}{100}$

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Armour.....	Parry Sound..	David Thaw,								
Bethune.....	"	Emsdale..	2	194			2	194		
Joly.....	"	"	8	913	3	323	3	324	3	399
McMurrich....	"	"			1	1			3	265
Perry.....	"	"								
Proudfoot.....	"	"	1	91	1	5	1	91	1	91
Hardy.....	"	H. J. Ellis,	1	201	4	104	1	200	1	202
Himsworth....	"	Powassan..	6	797	1	100	8	1,011	10	1,599
Laurier.....	"	"	2	200			1	100	1	100
Nipissing.....	"	"	3	500	3	88	4	485	4	783
Patterson.....	"	"	3	500	2	48			2	236
Bonfield.....	Nipissing.....	W. J. Parsons,	4	347			2	197	3	345
Boulter.....	"	North Bay..	1	100	1	4			1	204
Chisholm.....	"	"	5	567	1	12	5	722	9	1,142
Ferris.....	"	"	4	500			5	500	11	1,190½
Anson.....	Haliburton...	R. H. Baker,								
Glamorgan....	"	Minden..					2	198		
Hindon.....	"	"								
Lutterworth...	"	"					1	156		
Minden.....	"	"	4	338			2	250	1	172
Snowdon.....	"	"	1	100			1	100		
Stanhope.....	"	"	1	66			1	66		
Anstruther....	Peterborough.	William Hales,	2	400	1	3	3	500		
Burleigh, N.D..	"	Apsley..					1	175½		
" S.D.....	"	"	1	100						
Chandos.....	"	"	1	100						
Methuen.....	"	"	1	134						
Cardiff.....	Haliburton...	A. N. Wilson,	5	520			4	402	2	124
Cavendish....	Peterborough.	Kinmount..	1	55	1	50			1	74
Galway.....	"	"	4	616	1	21	7	793	3	321
Monmouth.....	Haliburton...	"	7	841	1	11	1	100	6	804
Bangor.....	Hastings.....	W. J. Douglas,	2	435	5	60	1	135		
Carlow.....	"	Maynooth..	3	400					3	280
Cashel.....	"	"					1	100		
Dungannon....	"	"	3	497			1	155	2	248½
Faraday.....	"	"	4	561			5	683	2	136½
Herschel.....	"	"	2	200	1	¼	2	200	3	319¾
Limerick.....	"	"	4	400	1	100	2	200		
Mayo.....	"	"	2	142½	2	71	2	197½	1	254
Monteagle....	"	"	1	100			1	100	2	261
McClure.....	"	"	4	301			1	100	1	85
Wicklow.....	"	"	1	99			1	99	2	205
Wollaston....	"	"			1	100			1	196
Algona, S.....	Renfrew.....	Frank Blank,	1	100						
Brougham....	"	Wilno..					1	200	1	161½
Brudenell....	"	"	7	427			2	191	5	657
Burns.....	"	"					1	101		
Grattan.....	"	"								
Griffith.....	"	"	1	37½						
Hagarty.....	"	"	3	399	1	8	2	179	1	112
Jones.....	"	"	11	1,032½	2	200	2	242		
Lyell.....	"	"	6	715½			3	310	1	200
Lyndoch.....	"	"	6	756	1	2	2	200	3	257

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Matawatchan..	Parry Sound..	Frank Blank, Wilno.	2	329	..	..	1	87	1	216
Radcliffe.....	"	"	20	2,261 $\frac{1}{2}$	1	51	7	788	10	1,810 $\frac{1}{2}$
Raglan.....	"	"	4	367	..	..	3	300	2	281
Richards.....	"	"	11	1,187	..	..	6	593	2	331 $\frac{1}{2}$
Sebastopol.....	"	"	2	200	1	1	..	..	..	..
Sherwood.....	"	"	6	589	..	..	2	123 $\frac{1}{2}$	3	150
Algona, N.....	Renfrew.....	James R. Lockhart,	..	..	..	..	..	..	1	50
Alice.....	"	Pembroke..	..	..	..	..	..	..	..	..
Buchanan.....	"	"	2	200	1	8	3	391	5	695
Clara.....	"	"	..	..	..	..	..	..	..	..
Fraser.....	"	"	1	115	..	..	1	107	2	101 $\frac{9}{10}$
Head.....	"	"	3	255	..	..	..	..	..	..
Maria.....	"	"	6	106	..	..	..	..	5	955 $\frac{1}{2}$
McKay.....	"	"	..	..	..	..	..	..	..	..
Petewawa.....	"	"	1	101	..	..	..	..	1	92 $\frac{1}{2}$
Rolph.....	"	"	3	415	1	30	..	..	4	868
Wilberforce.....	"	"	..	..	..	..	..	..	..	..
Wylie (pt.).....	"	"	2	341	..	..	1	75	..	..
Calvin.....	Nipissing.....	Robert Small,	2	170	..	..	1	70	2	372 $\frac{1}{2}$
Cameron (pt.)..	"	Mattawa..	9	1,086	..	..	3	627	1	100
Lauder.....	"	"	2	214	2	22	2	312	1	210
Mattawan.....	"	"	22	3,387	..	..	2	201	1	97
Papineau.....	"	"	..	..	..	..	2	200	4	747
Korah.....	Algoma.....	Thos. Dean.....	..	..	..	..	..	..	..	..
Parke.....	"	Sault Ste. Marie..	..	..	..	..	..	..	..	..
Prince.....	"	"	1	191	..	..	2	351	1	160
Aberdeen.....	Algoma.....	Thos. Dodds,	..	..	1	3	..	..	1	163
" ad.....	"	Thessalon..	1	160 $\frac{1}{2}$	..	..	1	160 $\frac{1}{2}$	3	329 $\frac{1}{4}$
Galbraith.....	"	"	..	..	..	..	..	..	..	..
Lefroy.....	"	"	..	..	..	..	..	..	1	90
Plummer.....	"	"	..	..	..	..	..	..	2	277
" ad.....	"	"	..	..	..	..	..	..	..	..
St. Joseph Is'd..	Algoma.....	W. E. Whybourne,	6	545	..	..	5	445	2	200
St. Joseph.....	"	"	..	..	..	..	..	..	..	..
Channel Is'd..	"	"	..	..	..	..	..	..	..	..
Jocelyn.....	"	"	..	..	..	..	..	..	2	200
Baldwin.....	Sudbury.....	Edward Arthurs,	6	760	..	..	4	620 $\frac{1}{2}$	3	353 $\frac{1}{2}$
Merritt.....	"	Espanola..	11	1,201	1	10	3	515 $\frac{1}{2}$	5	685
Blake.....	Thundred Bay	S. H. Wilson,	7	990	1	84	7	1,078	4	640
Connree.....	"	Port Arthur..	9	1,138	..	..	4	428	6	867 $\frac{1}{2}$
Crooks.....	"	"	5	648	..	..	3	449 $\frac{1}{2}$	2	305
Dawson Road..	"	"	15	1,715	5	185 $\frac{1}{2}$	5	552	7	846 $\frac{3.3}{0.0}$
Dorion.....	"	"	1	160	..	..	1	160	4	628
Gillies.....	"	"	11	1,415	1	6	2	317 $\frac{1}{2}$	1	161
Gorham.....	"	"	4	546 $\frac{1}{2}$	4	345 $\frac{1}{2}$	..	..	8	844 $\frac{1}{4}$
Lybster.....	"	"	10	1,427	4	318 $\frac{3}{4}$	3	456	2	318 $\frac{1}{2}$
Marks.....	"	"	2	318	1	..	2	239 $\frac{1}{2}$	6	934 $\frac{1}{2}$
McGregor.....	"	"	15	2,336	2	77 $\frac{1}{4}$	6	894	..	..
McIntyre.....	"	"	..	..	..	..	..	..	1	162
O'Connor.....	"	"	..	..	2	161	..	..	4	641 $\frac{1}{2}$
Oliver.....	"	"	5	724 $\frac{1}{4}$	..	..	1	161	2	320
Paipoonge, N.R.	"	"	..	..	..	..	..	..	1	100
" S.R.	"	"	..	..	..	..	..	..	..	..

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Pardee.....	Thunder Bay..	S. H. Wilson,	2	320	1	67 $\frac{1}{2}$	...	...	2	320
Pearson.....	"	Port Arthur..	8	1,224	1	1	4	652 $\frac{1}{2}$	5	820
Scoble.....	"	"	14	1,954	1	$\frac{1}{2}$	5	704	1	161
Stirling.....	"	"	19	2,468	1	80 $\frac{1}{4}$	8	1,052 $\frac{1}{4}$	3	342 $\frac{3}{4}$
Strange.....	"	"	6	947 $\frac{1}{2}$	4	6 $\frac{1}{2}$	4	625 $\frac{1}{2}$	1	161
Ware.....	"	"	7	776	4	218 $\frac{3}{4}$	5	780 $\frac{1}{2}$	9	1,506 $\frac{1}{2}$
Atwood.....	Rainy River..	Wm. Cameron,	...	...	...	...	1	164	...	...
Blue.....	"	Stratton..	9	1,167 $\frac{1}{2}$	...	...	9	1,184 $\frac{1}{2}$	2	324
Curran.....	"	"	4	644	...	...	2	322	...	...
Dewart.....	"	"	15	2,262	1	4	14	2,018 $\frac{3}{4}$	3	401
Dilke.....	"	"	...	...	...	...	...	...	...	...
Morley.....	"	"	5	569	...	...	...	569	1	162
Morson.....	"	"	28	4,087	1	141 $\frac{1}{8}$	26	3,391	1	258
McCrosson.....	"	"	9	1,484	...	...	11	1,723	3	543 $\frac{1}{4}$
Nelles.....	"	"	4	564	3	5	4	484	4	485
Patullo.....	"	"	12	1,360	4	208 $\frac{1}{2}$	12	1,595	3	320
Pratt.....	"	"	8	1,299 $\frac{1}{2}$	1	20	...	501 $\frac{1}{2}$	1	160
Roseberry.....	"	"	...	...	...	...	...	...	...	...
Shenston.....	"	"	1	160	1	4	...	...	3	384
Sifton.....	"	"	19	2,766	1	2	12	1,939 $\frac{1}{2}$	4	783 $\frac{1}{2}$
Spohn.....	"	"	9	1,211	1	81	7	1,042 $\frac{1}{2}$	2	178
Sutherland.....	"	"	12	1,935 $\frac{1}{4}$	2	40 $\frac{1}{4}$	9	1,480	5	657 $\frac{1}{2}$
Tait.....	"	"	9	980	3	46 $\frac{1}{2}$	4	333 $\frac{1}{2}$	2	314
Tovell.....	"	"	8	1,092 $\frac{1}{2}$	2	23	11	1,209	2	159
Worthington.....	"	"	...	...	...	...	...	...	3	574
Aylesworth.....	Rainy River..	Alex. McFayden,	2	160	...	...	...	...	...	...
Barwick.....	"	Emo..	...	...	...	...	...	...	...	...
Burriss.....	"	"	...	...	...	...	...	...	2	335 $\frac{1}{2}$
Carpenter.....	"	"	4	649	...	...	1	163	4	566
Crozier.....	"	"	1	41	...	...	...	...	...	...
Dance.....	"	"	7	1,126 $\frac{1}{2}$	...	...	7	1,126	1	159 $\frac{1}{2}$
Devlin.....	"	"	1	164	...	...	...	...	...	...
Dobie.....	"	"	4	546 $\frac{3}{4}$	1	168	4	554 $\frac{1}{2}$	...	745 $\frac{1}{2}$
Fleming.....	"	"	1	160 $\frac{1}{2}$	...	...	3	481	...	...
Kingsford.....	"	"	11	1,478	1	80 $\frac{1}{2}$	11	1,442	2	342 $\frac{1}{2}$
Lash.....	"	"	2	324	...	...	2	241	1	40 $\frac{1}{2}$
Mather.....	"	"	4	694	2	11 $\frac{1}{2}$	4	694	1	161
Miscampbell.....	"	"	1	159 $\frac{1}{2}$	1	$\frac{1}{2}$	...	...	3	480 $\frac{1}{2}$
Potts.....	"	"	4	56 $\frac{1}{2}$	1	2	3	481 $\frac{1}{2}$	2	322
Richardson.....	"	"	7	1,215	...	...	6	1,054	2	368
Roddick.....	"	"	...	...	1	70	...	...	1	230
Woodyatt.....	"	"	...	...	...	...	...	...	3	396
Aubrey.....	Kenora.....	J. E. Gibson.....	7	1,212 $\frac{1}{2}$	2	12 $\frac{1}{2}$	6	903 $\frac{1}{2}$	6	729
Britton.....	"	Dryden..	14	2,304	...	...	11	1,606	...	...
Eton.....	"	"	20	3,147	2	155 $\frac{1}{4}$	20	3,159 $\frac{1}{4}$	4	795
Langton.....	"	"	...	...	...	...	...	308 $\frac{1}{2}$	...	...
Melgund.....	"	"	7	1,008	1	27	6	878	...	...
Mutrie.....	"	"	4	532 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2	265	1	161 $\frac{1}{2}$
Redvers.....	"	"	12	2,090	5	137 $\frac{1}{2}$	5	672 $\frac{1}{2}$	2	329
Rowell.....	"	"	1	153	...	...	1	153	...	...
Rugby.....	"	"	11	1,623	...	...	6	960	...	...
Sanford.....	"	"	13	2,004 $\frac{1}{2}$	...	...	8	1,361 $\frac{1}{2}$	4	476 $\frac{1}{2}$
Southworth.....	"	"	12	1,740	1	4	11	1,538 $\frac{1}{2}$	1	137
Temple.....	"	"	8	1,109	...	...	8	1,182 $\frac{1}{2}$	1	160
Van Horne.....	"	"	...	...	...	...	3	465 $\frac{1}{2}$	2	169 $\frac{1}{2}$
Wabigoon.....	"	"	6	661	1	80	6	741 $\frac{1}{4}$	6	1,010
Wainwright.....	"	"	9	1,182 $\frac{1}{2}$	...	...	6	953	9	1,300
Zealand.....	"	"	32	4,686	3	130	13	1,1793	3	538

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Melick.....	Kenora.....	H. E. Holland,	8	886	2	81	11	1,701	.....	.....
Pellatt.....	"	Kenora..	6	642	1	42	6	653 $\frac{1}{2}$	4	373 $\frac{1}{2}$
Balfour.....	Sudbury.....	J. K. MacLennan,	1	71 $\frac{1}{2}$	1	71 $\frac{1}{2}$	3	479 $\frac{1}{2}$	.....	.....
Blezard.....	"	Sudbury..	2	303 $\frac{1}{2}$	.....	.....	1	160	2	223
Broder.....	"	"	1	171	.....	.....	.....	.....	2	219
Capreol.....	"	"	4	506	.....	.....	4	4,931 $\frac{1}{4}$	.....	.....
Chapleau.....	"	"	6	991 $\frac{1}{2}$	.....	.....	1	209	.....	.....
Dill.....	"	"	1	159 $\frac{1}{2}$	.....	.....	2	333	1	117 $\frac{3}{4}$
Garson.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Hammer.....	"	"	9	1,364 $\frac{1}{2}$	1	6	7	1,078 $\frac{1}{2}$	2	241 $\frac{3}{4}$
Lumsden.....	"	"	2	353 $\frac{1}{2}$	1	$\frac{1}{2}$	4	644	.....	.....
Morgan.....	"	"	2	235	1	$\frac{1}{2}$	.....	.....	2	235 $\frac{1}{4}$
Melon.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Rayside.....	"	"	2	226	.....	.....	1	124 $\frac{1}{2}$	1	101
Appleby.....	Sudbury.....	John Brown,	18	2,946 $\frac{3}{4}$	2	9	8	1,286	.....	490 $\frac{1}{2}$
Casimir.....	"	Markstay..	10	1,502	.....	.....	6	842 $\frac{1}{2}$	.....	.....
Dunnet.....	"	"	6	805	1	1 $\frac{1}{2}$	1	161	4	480
Hagar.....	"	"	11	1,743 $\frac{1}{2}$	.....	.....	14	1,970	1	160
Jennings.....	"	"	4	626 $\frac{1}{2}$	.....	.....	1	160 $\frac{1}{2}$	2	264 $\frac{1}{2}$
Kirkpatrick..	"	"	4	630	.....	.....	.....	.....	1	160
Ratter.....	"	"	16	2,562	1	15	10	1,561	4	640
Caldwell.....	Nipissing.....	J. A. Phillion,	3	307	1	15 $\frac{1}{2}$	1	75 $\frac{1}{2}$	5	597
Cosby.....	"	Sturgeon Falls.	6	957 $\frac{1}{2}$	1	1	.....	.....	.....	.....
Grant.....	"	"	11	1,540	2	4	5	800	2	159
Macpherson...	"	"	1	160	.....	.....	1	134	3	386 $\frac{1}{4}$
Martland.....	"	"	6	871	.....	.....	2	323	1	161
Springer.....	"	"	3	216	1	86	.....	.....	5	630
Abinger.....	Lennox and Addington..	Chas. Both,	2	248	1	19	1	149	.....	.....
Canonto, S....	Frontenac....	Denbigh..	.....	.....	.....	.....	.....	.....	1	73
" N.....	"	"	.....	.....	.....	.....	1	99	.....	.....
Clarendon.....	"	"	2	203	.....	.....	.....	.....	.....	.....
Denbigh.....	Lennox and Addington..	"	1	90	.....	.....	1	90	.....	.....
Miller (pt.)...	"	"	.....	.....	.....	.....	1	140	.....	.....
Palmerston....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
McClintock...	Haliburton...	Unattached.....	.....	.....	.....	.....	.....	.....	1	100
Airy.....	Nipissing.....	"	1	101	1	10	1	100	2	304
Finlayson.....	"	"	.....	.....	.....	.....	.....	.....	1	267
Murchison.....	"	"	.....	.....	.....	.....	.....	.....	3	599
Sabine.....	"	"	4	341	.....	.....	1	76	.....	.....
Burton.....	Parry Sound..	"	.....	.....	.....	.....	.....	.....	1	25
Total.....			1,013	135,656	177	5,954 $\frac{3}{4}$	629	85,988 $\frac{1}{2}$	460	64,813 $\frac{8}{15}$

No. of lots assigned..... 255

No of acres assigned..... 36,786

SELBY DRAPER,
Chief Clerk.W. C. CAIN,
Deputy Minister of Lands and Forests.W. R. LEDGER,
Clerk of Free Grants.

Appendix No. 13—Continued

ISLANDS SOLD.

Part or Parcel.	Township.	District or County.	Agent.	No. of Acres Sold.
Island D.....	Harrison.....	Parry Sound.....	Miss I. M. Campbell.	.33
" 356.....	Carling.....	".....	".....	1.36
" B 408.....	Cowper.....	".....	".....	2.1
" 842 A.....	Harrison.....	".....	".....	.4
" B 358.....	Conger.....	".....	".....	4.
Pt. Palestine Is'd	Carling.....	".....	".....	9.50
Island B 430.....	Cowper.....	".....	".....	4.50
" C 309.....	Carling.....	".....	".....	3.64
" W. S. 89.....	Mowat.....	".....	".....	4.5
" Owakwa-shkesh Lake..	McKenzie.....	".....	".....	2.
Island B 207.....	Conger.....	".....	".....	142.
" 30 A.....	Harrison.....	".....	".....	5.
" B 300.....	Conger.....	".....	".....	2.
Pt. McLaren Is'd	Cowper.....	".....	".....	3.
Island B 716.....	".....	".....	".....	2.7
" B 281.....	Conger.....	".....	".....	1.1
" 110 A.....	Harrison.....	".....	".....	4.50
" A.....	".....	".....	".....	6.3
" T P 3434	".....	".....	".....	.09
Low. French R.	".....	".....	".....	1.3
Island E.....	Shawanaga.....	".....	".....	5.
" T P 3513	".....	".....	".....	2.6
Pickernel River	".....	".....	".....	5.
Crescent Island	".....	".....	".....	.8
Three Mile Lk.	Armour.....	".....	David Thaw.....	5.
Island A.....	Hardy.....	".....	H. J. Ellis.....	8
W. D. 2523.....	".....	Sudbury.....	".....	5.
and F., Maskinonge Lake.....	Kelly.....	".....	".....	12.
Island T P 3142	".....	".....	".....	1.
Bear Lake.....	".....	".....	".....	3.
Island T P 3272	".....	".....	".....	.22
Lake Penange..	".....	".....	".....	1.2
Island T P 3271	".....	".....	".....	6.
Lake Penage...	".....	".....	".....	6.
Island T P 3149	".....	".....	".....	2.
Lake Penage...	".....	".....	".....	1.
Island T P 3237	".....	".....	".....	1.
Lake Penage...	".....	".....	".....	.80
Island T P 3169.	".....	".....	".....	10.
Island H Weslemkoon Lake..	Ashby.....	Lennox and Addington.....	".....	12.
Island B Weslemkoon Lake..	".....	".....	".....	5.
Island A, Otter Lake.....	".....	".....	".....	120.
Lyman Island, Weslemkoon Lk	Effingham.....	".....	".....	
Island in Otter Lake.....	S. Elmsley.....	Leeds.....	".....	
Part Deer Island	Leeds and Lansdowne	".....	".....	
Joe's Island,	Leeds and Lansdowne	".....	".....	
Charleston Lake	Lansdowne.....	".....	".....	
Part of Buck Island.....	Leeds and Lansdowne	".....	".....	
Rabbit Island,	Lansdowne.....	".....	".....	
Charleston Lake	".....	".....	".....	

Appendix No. 13—Continued

ISLANDS SOLD—Continued

Part or Parcel.	Township.	District or County.	Agent.	No. of Acres Sold.
Sheep Island in Charleston Lake	Lansdowne.....	Leeds.....		60.
Paudash Island, Loon Lake....	Chandos.....	Peterborough....	Wm. Hales.....	2.75
Island in Clear Lake.....	Cavendish.....	".....	A. N. Wilson.....	4.
Island L.....	Cardiff.....	Haliburton.....	".....	7.
Island A, West Lake.....	".....	".....	".....	5.
Indian Island, Calabogie Lake	Blithfield.....	Renfrew.....		3.
Island S F 40, Canyon Lake...		Kenora.....		3.7
Island T P 1939, Macgregor Bay		Manitoulin.....	W. E. Whybourne....	.64
Island T P 1388, Macgregor Bay		".....	".....	1.3
Island 43, St. Josephs Chan'el		Algoma.....	".....	1.
Edith Island, St. Josephs Chan'el		".....	".....	2.
Island 29, St. Josephs Chan'el		".....	".....	2.
Island E.....	Awere.....	".....	Thos. Dean.....	2.
Part of Island B Sharbot Lake...	Olden.....	Frontenac.....		1.94
Cranberry or Island A, Kashe-shebogamog Lake.....	Morrison.....	Muskoka.....	J. B. Brown.....	.37
Part Island A 3 in Sesekinika Lake.....	Grenfell.....	Timiskaming.....		6.6
Buck Island....	S. Crosby.....	Leeds.....	Unattached.....	10.
H 54 in Night Hawk Lake....	Cody.....	Cochrane.....	".....	.30
H 51 in Night Hawk Lake....	".....	".....	".....	.50
				526.16

Appendix No. 13—Continued

ISLANDS PATENTED.

Part or Parcel.	Township.	District or County.	Agent and P. O. Address.	No. of Acres Patented.
Island B 346....	Cowper.....	Parry Sound...	Miss I. M. Campbell, Parry Sound.	4.1-10
Island B 408....	".....	".....	".....	2.1-10
W.D. 2523.....	".....	Sudbury.....	".....	8.
T.P. 3172.....	".....	".....	".....	8.
T.P. 3142.....	Berth 90.....	".....	".....	12.
Island E.....	Carling.....	Parry Sound...	".....	4.4
Island 34.....	Harrison.....	".....	".....	$\frac{1}{2}$
Island 30a.....	".....	".....	".....	5.
Island 347a.....	".....	".....	".....	.1-5
Pt. Deer Island.	Leeds and Lansdowne	Leeds.....	.....	4.5
Pt. Deer Island.	".....	".....	.....	10.
Joe's Island....	".....	".....	.....	12.
				69 9

Appendix No. 13—(Concluded)

List showing number and locations by Returned Soldiers in Sale and Free Grant Territory, respectively.

District.	Agency.	Number Locations.
IN SALE TERRITORY		
Algoma.....	Hearst.....	22
".....	Kapuskasing.....	21
".....	Thessalon.....	1
".....	Sault Ste. Marie.....	3
Temiskaming.....	Englehart.....	15
".....	Cochrane.....	73
".....	Elk Lake.....	3
".....	Haileybury.....	1
".....	Matheson.....	51
".....	New Liskeard.....	4
Sudbury.....	Massey.....	3
".....	Sudbury.....	5
".....	Unattached.....	1
".....	Markstay.....	2
Nipissing.....	North Bay.....	10
Thunder Bay.....	Port Arthur.....	4
		219

Statement showing number of lots resumed for non-performance of settlement duties by, or on behalf of returned soldiers.

	No. of lots.
IN SALE TERRITORY.	
Temiskaming.....	Cochrane..... 67
".....	Englehart..... 5
".....	Matheson..... 14
".....	Hearst..... 19
".....	Elk Lake..... 1
Algoma.....	Massey..... 1
	<hr/> 107

IN FREE GRANT TERRITORY.

Nipissing.....	North Bay.....	2
Algoma.....	Sault Ste. Marie.....	1
		3

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 14.

Statement showing the number of purchasers, acres sold, sales cancelled, acres resumed, patents issued, and acres patented in Townships other than Free Grant during the year ending 31st October, 1922.

Township	District or County.	Agent.	No. of acres sold.	No. of pur- chasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Machin.....	Cochrane	S. J. Dempsay,						
	"	Cochrane	3,707	27	27	3,938		
Blount.....	"	"	2,468	19	17	2,136	1	61 $\frac{1}{2}$
Shackleton.....	"	"	1,635	12	25	3,713		
Brower.....	"	"	1,417 $\frac{1}{2}$	10	16	2,502 $\frac{1}{2}$	1	1
Pyne.....	"	"	1,124	7	11	1,769 $\frac{1}{2}$		
Newmarket.....	"	"	3,215 $\frac{3}{4}$	20	23	3,667		
Fauquier.....	"	"	1,202	9	24	3,451	2	300
Fox.....	"	"	2,214 $\frac{1}{2}$	14	25	3,957		
Clute.....	"	"	1,425	10	22	3,238	9	1,291
Kennedy.....	"	"	1,974	13	15	2,826		
Calder.....	"	"	3,755	25	63	9,401	1	145 $\frac{1}{2}$
Glackmeyer.....	"	"	1,873	13	26	3,754	11	1,640
Fournier.....	"	"	1,684	11	17	2,611 $\frac{1}{2}$		
Leitch.....	"	"	1,342	10	33	4,461		
Colquhoun.....	"	"	150	1	1	150		
Lamarche.....	"	"	637	4				
Casgrain.....	Cochrane	J. L. O'Donnell,						
	"	Hearst	3,450	24	29	4,335	2	293 $\frac{1}{2}$
Devitt.....	"	"	7,473	50	1	150		
Eilber.....	"	"	5,103	34	24	3,665		
Hanlan.....	"	"	6,253	42	40	6,296	1	149
Kendall.....	"	"	5,294	36	39	5,786	4	534
Lowther.....	"	"	3,610	24	41	6,185		
O'Brien.....	"	H. E. Sheppard, Acting Agent, Kapuskaing	8,241	87	2	175	3	188
Owens.....	"	"	3,021	31	1	100		
Williamson.....	"	"	869	10				
Bayley.....	Temiskaming	Jos. Woollings, Englehart						
Blain.....	"	"			1	160 $\frac{1}{2}$	1	158 $\frac{1}{2}$
Catharine.....	"	"			5	801	3	479 $\frac{1}{2}$
Chamberlain.....	"	"			2	317	2	356 $\frac{1}{2}$
Dack.....	"	"	275 $\frac{1}{2}$	2	1	158	4	501 $\frac{1}{2}$
Davidson.....	"	"						
Eby.....	"	"	163	2			1	140
Evanturel.....	"	"	143	1			7	952 $\frac{3}{4}$
Gross.....	"	"	480	3				
Ingram.....	"	"	319 $\frac{1}{2}$	2	10	1,574 $\frac{1}{2}$	2	319
Marter.....	"	"	160	1	4	640 $\frac{1}{2}$	3	481 $\frac{1}{2}$
Marquis.....	"	"	160	1	11	1,734	4	478 $\frac{1}{2}$
Otto.....	"	"	480	3	6	955 $\frac{1}{2}$		
Pacaud.....	"	"	160	1	8	1,273 $\frac{1}{2}$	5	597 $\frac{1}{2}$
Pense.....	"	"			4	650 $\frac{1}{2}$		
Robillard.....	"	"	406	3	1	135 $\frac{1}{2}$	3	486 $\frac{1}{2}$
Savard.....	"	"	319 $\frac{1}{2}$	2	7	1,118 $\frac{1}{2}$	6	942 $\frac{1}{2}$
Sharpe.....	"	"			1	159 $\frac{1}{2}$		
Truax.....	"	"	155 $\frac{1}{2}$	1	7	1,108 $\frac{1}{2}$		
Benoit.....	Temiskaming	J. E. Mills, Matheson	2,146	16	2	324	6	240 $\frac{1}{2}$
Beatty.....	Cochrane	"	873	7	6	887	6	760 $\frac{1}{2}$
Bond.....	"	"	1,723	14	19	2,849	3	468
Bowman.....	"	"	949	6	11	1,566	3	323

Appendix No. 14—Continued

Township.	District or County.	Agent.	No. of acres sold.	No. of pur- chasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Calvert.....	Cochrane.....	J. E. Mills, Matheson...	792	5	7	1,108	3	476
Carr.....	"	"	160	1	8	1,282	6	824½
Clergue.....	"	"	652	4	9	1,362	6	590
Currie.....	"	"	1,197	8	14	1,927	1	160
Dundonald.....	"	"	1,183	9	1	160		
Evelyn.....	"	"		9	21	2,963	2	289½
German.....	"	"	1,218	6	6	964	8	1,185
Hislop.....	"	"	801	11	40	6,006	3	389½
Matheson.....	"	"	1,499	10	15	2,460	1	162
Mountjoy.....	"	"	1,394	7	16	2,492	2	318
McCart.....	"	"	949	5	2	325	6	1,078
Playfair.....	"	"	798	9	12	1,801	1	161½
Stock.....	"	"	1,260	5	8	1,234	11	1,715
Taylor.....	"	"	791	2	12	1,870	3	475
Walker.....	"	"	320					
Armstrong.....	Temiskaming..	J. W. Bolger, New Liskeard...	240	2			5	758½
Auld.....	"	"	196	2	1	160	1	120
Beauchamp.....	"	"	158	1	3	482	2	320
Brethour.....	"	"	1,064	7	5	799	6	880
Bryce.....	"	"	479	3	9	1,371	1	160
Bucke.....	"	"	138	1	1	160	1	158½
Cane.....	"	"	319	2	3	361	5	736
Casey.....	"	"	78	1			7	905½
Dymond.....	"	"					1	76¾
Firstbrook.....	"	"			3	438	1	82
Harley.....	"	"					4	560
Henwood.....	"	"	162½	1	5	808	2	320½
Harris.....	"	"					2	201½
Hilliard.....	"	"	321	2	4	641	5	561½
Hudson.....	"	"			5	781	3	482
Kerns.....	"	"					3	398
Lundy.....	"	"	162	1	2	325		
Tudhope.....	"	"	83	1	1	153	3	318½
Smyth.....	Temiskaming..	Mark Morgan, Elk Lake...	158½	1				
Lorrain.....	Temiskaming..	Neil J. McAuley, Haileybury..	600	7	6	960	5	663
Mason.....	Nipissing.....	J. A. Philion, Sturgeon Falls..	320	2			3	257½
Scollard.....	"	"	407	3	1	164	2	323½
Hugel.....	Nipissing.....	John Brown, Markstay..	319	2	2	320	1	159
Loudon.....	"	"	164	1			1	161½
Widdifield.....	Nipissing.....	W. J. Parsons, North Bay..	641	4	32	5,349	7	1,038½
Phelps.....	"	"	2,081	14	3	480		
Awrey.....	Sudbury.....	R. A. Tesdale, Massey..	79½	1			1	160
Hallam.....	"	"					2	316½
Harrow.....	"	"	140	1			1	140
May.....	"	"	616	4	1	163	3	479½
Salter.....	"	"	259	2	1	80	4	580
Shedden.....	"	"			1	150	1	30
Victoria.....	"	"	283	2	2	214	2	240

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chases	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Dowling.....	Sudbury.....	J. K. McLennan, Sudbury.....			1	158	2	326
McKim.....	".....	".....	161	1			2	311
Loughrin.....	".....	".....	478	3			1	34
Delamere.....								
Drayton.....	Kenora.....	H. E. Holland, Kenora.....	151	3			3	298
Bright.....	Algoma.....	Thos. Dodds, Thessalon.....	160	1	2	352	2	236
Bright ad.....	".....	".....			1	151		
Day.....	".....	".....						
Gladstone.....	".....	".....						
Gould.....	".....	".....	123	1	1	160		
Houghton.....	".....	".....					1	157
Johnson.....	".....	".....			1	133	2	293½
Kirkwood.....	".....	".....						
Parkinson.....	".....	".....	161½	1	1	161	2	318½
Patton.....	".....	".....	157	1	2	327	4	552½
Rose.....	".....	".....			1	167		
Striker.....	".....	".....	221	2	4	397	1	151½
Thompson.....	".....	".....	159	1			1	160
Wells.....	".....	".....						
Aweres.....	Algoma.....	Thos. Dean, Sault Ste. Marie	98	1	2	308	2	100
Tarentorus.....	".....	".....	80	1	1	90	1	80
Vankoughnet.....	".....	".....			2	294	3	451
Forbes.....	Thunder Bay.....	S. H. Wilson, Port Arthur..	2,078	15	4	582	3	471½
Lyon.....	".....	".....	223	2	4	613	1	158
Nipigon.....	".....	".....	453	3	2	315	6	1,099
Upsala.....	".....	".....	3,694	25				
Nairn.....	Sudbury.....	E. Arthurs, Espanola..	185	1			2	330
Admaston.....	Renfrew.....	Unattached.....	100	1			3	275
Barrie.....	Frontenac.....	".....	192	2	2	192	1	154
Badgerow.....	Nipissing.....	".....	420	3	2	242	2	365
Bagot.....	Renfrew.....	".....	685	5	1	100	4	600
Bigwood.....	Sudbury.....	".....	1,198	9			6	115
Bastedo.....	Nipissing.....	".....	320	2				
Crerar.....	".....	".....	1,268	9	1	160	5	795
Creighton.....	Sudbury.....	".....	323	2	1	80½	1	162
Drury.....	".....	".....			2	240		
Dummer.....	Peterboro.....	".....	100	1				
Fairbank.....	Sudbury.....	".....	238	2			2	238
Field.....	Nipissing.....	".....	667	6	1	204	6	587
Gibbons.....	".....	".....	198	2			2	198
Harvey.....	Peterboro.....	".....	97	1	2	202	4	717
James.....	Temiskaming.....	".....	42	1			4	157½
Kennebec.....	Frontenac.....	".....	180	1			1	180
Kaladar.....	Lennox and Addington...	".....	128	1			2	322½
Laxton.....	Victoria.....	".....	100	1	1	100	1	100
Lorne.....	Sudbury.....	".....	856	6			4	387
Louise.....	".....	".....	223	2			2	273
Medonte.....	Simcoe.....	".....	180	1	1	190		
Proton.....	Grey.....	".....	199	2			2	199½

Appendix No. 14—Concluded

Township.	District or County.	Agent.	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Rutherford.....	Manitoulin....	Unattached .....	.....	.....	1	164	.....	.....
Sherbrooke, S....	Lanark.....	“	50	1	.....	.....	1	50
Shakespeare.....	Sudbury.....	“	85	2	.....	.....	2	89½
Somerville.....	Victoria.....	“	159	1	.....	.....	2	251
Tudor.....	Hastings.....	“	99	1	1	99	2	199
			121,222	894	935	140,775	328	43,119½

Number of Lots assigned.....549 Number of Acres assigned.....75.102

J. E. DRINKWATER,
Clerk in charge.
SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Statement showing the number of purchasers, acres sold and of patents issued in Townsites during the year ending 31st October, 1922.

Townsite.	District or County.	Agent.	No. of acres sold.	No. of pur- chasers.	No. of patents issued.	No. of acres patented.
Adolphstown.....	Lennox and Addington	Unattached	77.41	1	1	77.41
Alexandra.....	Cochrane.....	“ .....	.24	1	.....	.....
Belleville.....	Hastings.....	“ .....	.12	1	1	.25
Capreol.....	Sudbury	“	1.02	9	9	1.14
Foleyet.....	“ .....	“ .....	.17	2	.....	.....
Frederickhouse.....	Cochrane.....	“ .....	.20	2	.....	.....
Gogama.....	Sudbury .....	“ .....	.44	4	3	.44
Grant.....	Thunder Bay.....	“ .....	.94	6	4	.80
Hornepayne.....	Algoma.....	“ .....	.36	1	.....	.....
Kirkland Lake.....	Temiskaming.....	“	1.21	13	8	.55
“ extension..	“ .....	“ .....	.60	8	.....	.....
Lowbush River.....	“ .....	“ .....	.54	2	.....	.....
Macfarlane.....	Kenora.....	“ .....	.90	2	6	2.14
Minden.....	Haliburton.....	“	1.50	2	1	.75
Missinabie.....	Algoma.....	“	2.92	16	4	1.05
Moonbeam.....	Cochrane.....	“	1.57	2	1	1.40
North Capreol.....	Sudbury.....	“ .....	.13	1	3	.39
Sioux Lookout.....	Kenora.....	“ .....	.88	4	7	2.86
Swastika.....	Temiskaming.....	“	1.09	6	.....	.....
Waldhof.....	Kenora.....	“ .....	.65	1	1	.65
Winnipeg River Cross- ing.....	“ .....	“ .....	.69	2	1	.23
Wood.....	Muskoka.....	“ .....	.65	1	.....	.....
			94.23	88	50	90.06

SELBY DRAPER,
Chief Clerk.
J. B. PROCTOR,
Clerk in charge.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 15.

HONOURABLE BENIAH BOWMAN

Minister of Lands and Forests.

REPORT OF CROWN SURVEYS.

Sir,—During the past year surveys have been carried out on Crown Lands under instructions from this Department to the extent of 1,000 miles of Provincial boundary, base and meridian and township boundary lines, also covering 2,000 miles of lake, river and is and traverse.

INTERPROVINCIAL BOUNDARY BETWEEN ONTARIO AND MANITOBA.

This boundary survey commenced in 1921 was continued in charge of J. W. Pierce, Ontario and Dominion Land Surveyor, of Ottawa, and pushed forward to the twelfth base line on the system of Dominion Land Survey, this being the deflecting point in the boundary as described by the Act of Parliament of Canada of 1st April, 1912. The Commissioners appointed by the respective Governments will make a special report on this boundary survey when the final returns are completed.

INTERPROVINCIAL BOUNDARY BETWEEN ONTARIO AND QUEBEC.

In order to preserve and perpetuate the existing line it was found expedient to retrace and remonument the Ontario-Quebec Boundary from a point on the northerly bank of Lake St. Francis, near Baudette, to a point on the Ottawa River near Pointe Fortune. In compliance with an Order-in-Council dated 20th day of March, 1922, instructions issued to E. T. Wilkie, Ontario Land Surveyor, on behalf of this Province, and similar instructions issued to Paul E. Mercier, Quebec Land Surveyor, on behalf of the Province of Quebec, to carry on this joint survey. I am glad to report that this retracing of the line was carried on harmoniously and to the satisfaction of both representatives and the report on this work will be found herein.

BASE AND MERIDIAN LINES.

Phillips and Benner, Ontario Land Surveyors, and K. G. Ross, Ontario Land Surveyor, were engaged on base and meridian line work west of the Nipigon Forest Reserve, in the district of Thunder Bay.

TOWNSHIP BOUNDARIES.

The following surveyors were in charge of township boundary work:—

District of Sudbury, six-mile townships,—

J. W. Fitzgerald.

Chas. V. Gallagher.

McAuslan, Anderson & Moore.

District of Cochrane, nine-mile townships,—

Sutcliffe & Neelands.

Speight & Van Nostrand.

District of Algoma,—

H. J. Beatty.

LAKE AND RIVER TRAVERSE.

- (1) Traverse of English River from Lac Seul westward, districts of Kenora and Patricia, J. S. Dobie.
- (2) Traverse of shore and islands Lake Wabigoon, district of Kenora, R. S. Kirkup.
- (3) Traverse of shore and islands Lake of the Woods, district of Rainy River, D. J. Gillon.
- (4) Traverse of Abitibi River north from the township of Leitch, district of Cochrane, C. R. Kenny.
- (5) Traverse of part of Severn River, County of Simcoe and district of Muskoka, J. T. Coltham.
- (6) Traverse of Mississaga River, district of Algoma, T. J. Patten.
- (7) Traverse of Reuben Lake, district of Nipissing, T. G. Code.
- (8) Traverse of lakes and islands in township of Methuen, County of Peterborough, C. H. Wilkins.

TIMBER LIMIT SURVEYS.

- (1) Burnt area near Jellicoe, district of Thunder Bay, Phillips & Benner.
- (2) Timber lines in the townships of Afton, MacBeth and Sheppard, district of Sudbury, Mooney and Gill.
- (3) Timber lines in Township 9, Z, district of Sudbury, Lincoln Mooney.
- (4) Berth No. 25, district of Rainy River, D. J. Gillon.

MISCELLANEOUS SURVEYS.

- (1) Subdivision of park lots in Rondeau Park, county of Kent, C. E. Fitton.
- (2) Survey of Pine Island, in St. Mary's River, into summer resort parcels, K. G. Ross.
- (3) Additional town lots laid out at Alexandra, in the district of Cochrane, G. F. Summers.
- (4) Survey of park lots in Presqu'île Park, county of Haliburton, M. M. Gibson.
- (5) Resurvey of certain township lots along the Timiskaming and Northern Ontario Railway extension in the township of Blount, district of Cochrane, G. P. Angus.

INSPECTION.

Inspection of work in the field was carried on during the year by Charles E. Fitton, and I am glad to be able to report that the work as a whole has been well performed. Detailed reports of the several surveys for which returns have been made during the year will be found in appendices 20 to 24, inclusive.

L. V. RORKE,
Director of Surveys.

Toronto, October 31st, 1922.

Appendix No. 16.

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1922.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under Ont. Statutes 1920, chap. 48, sec. 11-18, inclusive.
1	Speight & VanNstrand,	726	Aug. 18, 1921	To survey the limits of Durie Street in the City of Toronto, in the County of York, and to plant stone or other durable monuments to define the limits of said street....	Dec. 27, 1921.
1	James J. MacKay.	730	May 8, 1922.	To survey the original road allowance between the broken front and first concession of the township of Clinton, across lot 23, in said township.....	Aug. 31, 1922.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1922.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	J. H. Moore.....	729	Dec. 2, 1921	To survey the side road line between lots 20 and 21 in the 1st concession of the Township of Beckwith, and also the line between the 8th and 9th concessions in said township in front of lots 1 to 5 inclusive, and that iron monuments be placed to mark the said road allowance as set out herein.
2	James J. MacKay.	730	May 8, 1922	To survey the original road allowance between the broken front and first concession of the Township of Clinton, across lot 23, in said township.
3	Frank N. Rutherford.....	731	Aug. 24, 1922	To survey the road allowance between the Townships of Niagara and Grantham in the County of Lincoln, extending from the Queenston and Grimsby Provincial Road to the lake shore road, and to plant durable monuments to mark the said road allowance as set out herein.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 18.

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
1	April 12, 1922	H. J. Beatty.....	Survey certain township outlines, district of Algoma.....	\$7,237.50
2	Sept. 26, 1922	G. P. Angus.....	Resurvey of certain lots in the Township of Blount, district of Cochrane.....	1,000 00
3	April 27, 1922	Jas. T. Coltham....	Traverse of Severn River between the Townships of Matchedash, Baxter, Morrison, Wood.....	1,818 80
4	April 18, 1922	J. S. Dobie.....	Traverse the shores of the English River and the islands therein, district of Kenora and Patricia.....	8,600 00
5	April 12, 1922	J. W. Fitzgerald....	Certain township outlines south of the Canadian Pacific Railway, district of Sudbury.....	6,120 00
6	May 8, 1922	C. E. Fitton.....	Inspection of surveys, 1922.....	3,496 00
7	April 12, 1922	Chas. V. Gallagher .	Certain township outlines along the Canadian Pacific Railway, district of Sudbury.....	4,016 00
8	April 17, 1922	D. J. Gillon.....	Traverse of islands and part of shore lines Lake of Woods, district of Rainy River.....	4,800 00
9	April 18, 1922	C. R. Kenny.....	Traverse of portion of Abitibi River, district of Cochrane.....	2,950 00
10	April 18, 1922	Roy S. Kirkup.....	Traverse shores of Wabigoon Lake, etc., district of Kenora.....	2,700 00
11	April 12, 1922	McAuslan, Anderson and Moore.....	Certain township outlines along Canadian Pacific Railway, district of Sudbury...	5,790 00
12	April 1, 1922	Mooney & Gill.....	Certain lines in unsurveyed territory, district of Sudbury.....	3,000 00
13	April 21, 1922	Phillips & Benner...	Base and meridian lines, district of Thunder Bay.....	6,207 50
14	April 26, 1922	T. J. Patten.....	Traverse part of Mississaga River, district of Algoma.....	3,099 00
15	April 22, 1922	K. G. Ross.....	Base and meridian lines, district of Thunder Bay.....	7,973 50
16	April 12, 1922	Sutcliffe & Neelands	Certain township outlines on Abitibi River, district of Cochrane.....	3,700 00
17	April 12, 1922	Speight & VonNosstrand.....	Certain township outlines on Abitibi River, district of Cochrane.....	7,492 50
18	April 5, 1922	E. T. Wilkie.....	Renewal portion boundary between Ontario and Quebec.....	1,400 00
19	April 27, 1922	C. H. Wilkins.....	Traverse certain lakes and rivers, Township Methuen.....	1,900 00

Appendix No. 18—Concluded

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
20	March 7, 1921	J. W. Pierce.....	Survey boundary between Ontario and Manitoba.....	12,900 00
21	June 5, 1922	M. M. Gibson.....	Certain survey work, Presqu'ile Park, County of Northumberland.....	600 00
22	July 25, 1922	T. G. Code.....	Traverse Reuben Lake, etc., district of Nipissing.....	800 00
23	Aug. 21, 1922	L. Mooney.....	Survey timber berth line, Township 9 Z, district of Sudbury.....	1,000 00
				<hr/> \$10,100 80

L. V. RORKE,
Director of Surveys.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 10.

Statement of Crown Surveys completed and closed during the twelve months ending
October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
1	Oct. 3, 1921	R. M. Anderson....	Retracing and establishing the boundaries of land lying between Long Point and Walsingham Townships.....	\$569 94
2	April 15, 1922	H. J. Beatty.....	Survey certain township outlines in district of Algoma.....	1,761 48
3	May 16, 1921	Jas. T. Coltham....	To traverse certain lakes and rivers in Townships of Wallbridge and Harrison	1,684 55
4	May 2, 1921	T. G. Code.....	Traverse certain lakes and streams in the Timagami Forest Reserve, district of Timiskaming and Nipissing.....	2,504 87
5	April 5, 1921	Jas. S. Dobie.....	Traverse the islands and shores of Lake St. Joseph and run certain base and meridian lines in Thunder Bay district	3,106 08
6	May 17, 1921	C. E. Fitton.....	Inspection of surveys, 1921.....	1,609 71
7	April 15, 1921	J. W. Fitzgerald....	Survey certain township outlines north of Canadian Pacific Railway in district of Sudbury and Algoma.....	2,513 14
8	May 18, 1921	D. J. Gillon.....	Survey islands and shore lines in part of Lake of the Woods in the district of Rainy River and Kenora.....	2,430 40
9	May 5, 1921	Chas. V. Gallagher	Survey certain township outlines north of Canadian Pacific Railway in the district of Sudbury.....	1,803 30
10	May 2, 1921	R. S. Kirkup.....	Traverse Kenogami River and its expansions in the districts of Thunder Bay and Algoma.....	2,253 96
11	April 22, 1921	Carmen R. Kenny..	To continue traverse of Missinaibi River in districts of Algoma and Timiskaming	1,943 88
12	Oct. 3, 1921	L. Mooney.....	Survey a meridian Township 44, along Canadian Pacific Railway, district of Sudbury.....	434 70
13	May 16, 1921	McAuslan & Anderson.....	Survey certain township outlines north of Canadian Pacific Railway, district of Sudbury.....	2,075 55
14	May 16, 1921	T. J. Patten.....	Survey traverse islands in French River districts of Parry Sound and Sudbury..	2,610 75
15	April 15, 1921	Phillips & Benner...	Survey certain base and meridian lines in district of Thunder Bay.....	2,556 37
16	Aug. 22, 1921	Phillips & Benner...	Survey outlines timber berth south of Ignace, district of Kenora.....	5,228 69
17	March 7, 1921	J. W. Pierce.....	Survey of portion of Interprovincial Boundary between Ontario and Manitoba.....	5,406 77
18	April 15, 1921	K. G. Ross.....	Survey base and meridian line, district of Thunder Bay.....	2,358 80

Appendix No. 19—Concluded

Statement of Crown Surveys completed and closed during the twelve months ending
October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
19	April 15, 1921	Speight & VanNstrand.....	Survey certain township outlines at head waters of Missinaibi River, districts of Sudbury and Algoma.....	2,763 34
20	Nov. 4, 1920	Bingham & Kirkup.	Resurvey certain lines in Township of Pardee, district of Thunder Bay.....	808 17
21	May 27, 1920	G. F. Summers.....	To survey a town plot and other lands in the vicinity of Kapuskasing, Township of O'Brien, district of Timiskaming.....	2,948 60
22	Dec. 3, 1921	D. J. Gillon.....	Survey of timber berth 25, district of Rainy River.....	372 00
23	March 2, 1922	C. E. Fitton.....	Survey in Rondeau Park.....	591 05
24	Aug. 18, 1921	McAuslan, Anderson & Moore.....	Survey of lots in town plot of Grant....	249 45
25	Dec. 20, 1921	G. F. Summers.....	Survey additional lots in town plot of Alexandra.....	362 38
26	.....	Baines & David....	Survey iron posts.....	170 00
27	Aug. 16, 1922	Phillips & Benner...	Timber berths near Jellicoe Station....	772 40
28	July 4, 1922	Thornton & Co.....	Supplies.....	20 00
29	July 4, 1922	Surveyor-General...	Supplies, Boundary Survey, Ontario and Quebec.....	96 24
30	Nov. 23, 1921	K. G. Ross.....	Salary, etc.....	48 00
31	May 12, 1920	N. B. MacRostie...	Township outlines in Timiskaming.....	1,949 54
32	June 30, 1919	H. K. Wicksteed, executor A. L. Russell.....	Survey Shebandowan and Greenwater Lakes.....	725 80
	April 25, 1922	Pritchard, Andrews & Co.....	Brass plates.....	26 00
Total.....				\$54,755 81

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 20.

COBALT, ONT., February 1st, 1922.

SURVEY OF SMALL LAKES NORTH AND EAST OF LAKE TIMAGAMI, DISTRICTS OF
TIMISKAMING AND NIPISSING.

Sir,—In obedience to your instructions dated May 2nd, 1921, to traverse certain lakes and canoe routes in the Timagami Forest Reserve, I have surveyed as much of my contract as was possible in a season, and beg to report as follows:—

1.—ROUTINE OF WORK.

On May 7th I left Cobalt with my party. We packed in supplies to Anima, Nipissing Lake and commenced survey thereof the following Tuesday, May 10th, carrying on through McLean, Carrying and Red Squirrel Lakes down to Sandy Inlet on Lake Timagami, surveying the small lakes Pickerel, Gull Rock, Breeches, Mountain and Clearwater from camps on Anima, Nipissing, finishing this section of the work on June 9th.

On June 10th we moved down through Lake Timagami, Snake Island, White Bear and into Rabbit Lake, reprovisioning the outfit and commencing the survey of Rabbit Lake on June 15th. The survey was carried on from here through White Bear, Snake Island, Obaskong, Net, Cedar and Thieving Bear Lakes, completing Thieving Bear Lake on the morning of July 28th, and moving a light camp the same day to Mountain Lake. As the route from Thieving Bear to Mountain Lake is through a very small winding creek, barely more than fifteen feet wide in low water, I did not feel that the time necessary to survey this would be well spent and, therefore, sketched the route and chained the portages, which are in fair condition. For driving logs, dams will be necessary to raise the water above the low flat banks of the present creek.

The survey of Mountain Lake was completed on July 29th and camp moved to mileage 76, T. & N. O. Ry., at Net Lake, on July 30th. A few days were spent making arrangements to have camp outfit picked up by the way freight and moved to Doherty Station, and in getting a new supply of provisions. However, with as little delay as possible the survey of Twin Lakes was commenced on August 4th. After surveying Upper and Lower Twin Lakes and Lowell Lake, we moved camp on August 12th to a small lake two and one-half miles south of Doherty. The water was very low and the canoe route through the northeast corner of Law township had not been in use for ten or twelve years, so we cut a new portage three-quarters of a mile south into Angus Lake. This we found to benefit others as well, probably more than twenty tourists passing through this way in the short time we were surveying Angus and Caribou Lakes. From here we continued survey through Angus, Jumping Caribou, Ingall, Brophy, Green, Wasaksinagama, Island, Herr dge, Wilson and Christy Lakes, finishing this portion of the work on October 12th. On October 13th, I moved camp to Timagami Lake, arriving back in Cobalt and paying off the men on October 14th.

All the work allotted to me was not completed but I have tried to survey as many lakes as possible along the routes to save going over the same ground a second time.

The following is the mileage of traverse, calculated by wheeled scale, which though close, can only be approximate,—

	Miles.
Anima Nipissing and Pickere' Lakes.....	57.50
Islands.....	7.00
Gull Rock Lake.....	6.00
Breeches Lake.....	4.50
Clearwater Lake.....	11.75
McLean Lake.....	6.25
Mountain Lake.....	15.50
Carrying Lake.....	3.00
Red Squirrel Lake.....	14.00
Rabbit Lake.....	46.50
White Bear Lake.....	17.75
Snake Island Lake.....	6.50
Obaskong Lake.....	3.50
Net Lake.....	36.00
Cedar Lake.....	13.00
Thieving Bear Lake.....	8.50
Upper and Lower Twin Lakes.....	14.50
Lowell Lake.....	4.00
Angus Lake.....	6.00
Jumping Caribou Lake.....	20.00
Ingall Lake.....	19.50
Brophy Lake.....	6.75
Green Lake.....	1.00
Wasaksinagama Lake.....	35.00
Island Lake.....	7.50
Herridge Lake.....	13.00
Wilson Lake.....	8.00
Christy Lake.....	4.50
Wilson to Christy Lake route.....	3.00
	<hr/>
	400.00

2.—METHOD OF SURVEY.

(a) Instruments used.—Throughout the whole survey, traverse was made by stadia readings. Azimuth angles were carried through with the transit A. C. L. Berger instrument was used and gave perfect satisfaction, both for stadia distances and for azimuth. The only adjustment necessary at any time was for level bubbles.

Stadia rods used were made by myself and read direct to tenths of links. The accuracy of readings being checked from time to time by reading on measured lines.

(b) Field Notes.—One form of field notes were kept throughout the course of the work. The notes were transcribed in ink and carefully checked. They show station, azimuth, angle right, bearing and under remarks, the point on which the reading was taken.

(c) Observations were taken frequently on Polaris for azimuth. The results are shown in the field notes.

(d) Posts and blazed trees.

Posts were planted and bearing trees marked at one chain back from the intersections of the several township boundaries with the shores of the different lakes.

Around the shores of the lakes at intervals of about a mile, trees were blazed and marked with a number. In almost every case the number given was the number of the station of the traverse, but where this was not found convenient, other numbers were used and are shown on the plans and in the field notes.

3.—DESCRIPTION OF LAKES AND RIVERS.

In dealing with this heading, on account of the smallness of the lakes and the general features being the same, I am grouping the surveys similar to 1, Routine of Work.

(a) *Anima Nipissing Lake to Red Squirrel Lake Section.*

All these lakes have fairly high rocky shores. The land close to the shores is not suitable for agriculture, with the exception of a very few isolated spots where the overburden is sufficient to permit farming.

Timber.—The timber throughout this section consists of 8"-16" red pine, 12"-18" scattered white pine, 4"-8" birch, 4"-8" spruce, together with some cedar and balsam, in the low places. The timber at the northwest end of Anima Nipissing Lake is not quite as good as the rest of the area described.

Islands. —The islands are, with the exception of one or two small ones on which the timber has been destroyed by careless campers, well timbered.

(b) *Rabbit and White Bear Lake Section.*

Considerable timber has been destroyed on Rabbit, White Bear, Snake Island, and Obaskong Lakes. The standing dead trees do not contribute to the beauty of the place and give the impression that considerably more timber has been destroyed than is actually the case. The high shores taking up the rise in the water level. A fair estimate would be about one chain in width along the shores of the several lakes, say from six to seven hundred acres.

The timber along the shores of Rabbit Lake consists of jack pine, average 10", red pine 12"-18", birch and poplar, with cedar and balsam. Farther north, around White Bear Lake, the timber consists of 4"-15" red and white pine. Small poplar and birch, spruce and balsam.

(c) *Net Lake Section, including Cedar and Thieving Bear Lakes.*

The general physical features of this system are very similar to the previous lakes described. The shores, however, are not quite so precipitous.

The timber consists of 4"-16" red pine, 4"-10" white pine, 4"-18" poplar, with cedar along the shores together with spruce.

(d) *Lake Section through Law and Strathcona Townships.*

The shores of these lakes are even more rugged than the lakes previously described. The country back of the lakes being very rough and rocky.

Considering the amount of rock exposed the timber is very good consisting of 8"-16" red and white pine, balsam, birch and poplar, increasing to 6"-20" red and white pine at Island Lake and carrying through with the same class of timber to Wilson and Christy Lakes. Very little of this has been destroyed by fire. The section around Angus, Caribou and Ingall Lakes being very old brule. The islands, however, are well timbered.

(e) Remarks.

Throughout the course of the survey it has been very noticeable that the brule area is confined to the T. & N. O. Railway. Apart from portions close to the railway, due probably to sparks from locomotives and possibly due to carelessness of the men in the employ of the different construction companies building the line, there is practically no timber destroyed by fire. This is probably due to the efficient staff of fire rangers at Timagami.

The section of the Timagami Reserve surveyed last summer is an ideal spot for tourists. The scenery is beautiful. The canoe routes are not hard. The lakes are excellent for fishing. At present a great number of people from points farther north spend their holidays there, as well as pleasure seekers from the south. There are several dangerous shoals in Timagami Lake even for canoes in bad weather. These, I feel, should be shown on future maps of the lake.

Accompanying this report are:

Plans—

Sheet No. 1—

Anima Nipissing, Pickerel, Gull, Rock, Breeches, Mountain, Clear-water, McLean, Carrying and Red Squirrel Lakes.

Sheet No. 2—

Rabbit, White Bear, Snake Island and Obaskong Lakes.

Sheet No. 3—

Net, Cedar and Thieving Bear Lakes.

Sheet No. 4—

Upper and Lower Twin Lakes, Lowell, Angus, Jumping Caribou, Ingall, Brophy, Wasaksinagama, Island, Herridge, Wilson and Christy Lakes.

Field Notes—

Three field books containing notes of all the above plans.

Diary of progress of survey.

Time Book.

The above is respectfully submitted,

I have the honour to be, Sir,

Your obedient servant,

T. G. CODE,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 21.

SURVEY OF MISSINAIBI RIVER, DISTRICTS OF ALGOMA AND TIMISKAMING.

SAULT STE. MARIE, ONT., January 16th, 1922.

SIR,—Under instructions from you dated April 22nd, 1921, to survey the Missinaibi River from the north boundary of the Township of Sankey to the Mattagami River, and to complete the survey of Opazatika River from the north boundary of the Township of Idington to its mouth, I commenced organizing for this survey May 13th, 1921, leaving Sault Ste. Marie with my outfit and four men and arriving at Mattice on May 18th. At this point I overhauled supplies and outfit, and proceeded down Missinaibi River on the twentieth, arriving below point of commencement the following day.

The problem of transportation on this portion of Missinaibi River is one of extreme difficulty, particularly at low water. From north boundary to Township of Sankey the river can be run all the way to Conquering Rapids by experienced canoemen using poles almost constantly as flow is rapid and boulders frequent.

Between head of Conquering Rapids and foot of the Long Rapids a distance of four and a half miles, is sixty per cent. portage. The old portages were re-cut out by my party as this was absolutely necessary. The approaches to the portages are hazardous and require careful use of pole and paddle.

At the north side of the Township of Sankey the river is divided into two channels by Skunk Island reuniting thirty chains north of the line. The elevation of surface of river here is 645 feet. Half a mile north of Township of Sankey, Isabell and Alice Islands commence. The river here from Skunk Island to Isabell Island is almost ten chains wide with easy flow. On either side of Alice Island the river runs through clay country, but the shores are marked by stones and occasional large boulders. From the north boundary of Sankey for about fourteen and one-half miles the river flows moderately swift, and with easy curves to the head of Conquering Rapids. Surface at head of rapids is 620 feet and at foot 609 feet with a length of about thirty chains. At the head of the rapids are four rocky islands, and rock is plainly visible on the shore.

Thunder House Falls is one-half mile below Conquering Rapids, and is comprised of three separate falls within twenty chains, elevations at head of first fall 604 feet, and elevation at foot of third fall being 565 feet. Below this is a gorge three to four chains wide falling four feet in a length of twenty chains. At the head of first fall is a solid rock island which seems a favourable dam site. I consider that a dam twenty feet high, elevation of crest 624 feet, would be 700 feet long, of which 300 feet would be of moderate height, and would drown out Conquering Rapids. The difficulty here is the existence of Coal River running eastward from near foot of Conquering Rapids to a point about ten miles farther down the Missinaibi River, being a sort of high water by-pass or channel; whether this could be easily blocked or regulated I cannot say. Photographs accompanying this report will indicate clearly the nature of possible dam site.

One mile and three-quarters below lower end of Thunder House Gorge is the head of Stone Rapids which consists of a series of rapids, chutes and falls with a total drop of thirty-one feet within a distance of thirty chains. The sides of the valley of Stone Rapids are clay banks perhaps seventy-five feet high. There was apparently no chance of favourable power development near

head of rapids, but possibly a dam could be constructed at or about position of Post No. 10 as shown on plan, though no natural dam site was noted.

Three-quarters of a mile below Stone Rapids is the head of the Long Rapids, surface elevation 494 feet. A fair natural dam site exists just below island "P." Total length of dam with crest at 520 feet would be about 700 feet. Another natural dam site exists half way down the rapids, marked surface elevation 451.5 and where there is a drop to elevation 408.3 in about five chains. This is perhaps the best way to develop power at this rapids as a dam thirty feet or more above elevation 451.5 feet would only be 400 feet long. Possibly a two stage development would be more economic.

The total drop in the four rapids, Conquering Rapids, Thunder House Falls, Stone Portage Rapids and the Long Rapids is 255 feet. The distance from head of Conquering Rapids to foot of the Long Rapids is four and one-half miles by river, so that the total development by low impounding dam at head of Conquering Rapids and penstock lines would be a very expensive undertaking. The water shed area determination is an important factor. Whether it is possible to utilize Coal River as a power canal in whole, or in part, or to make development by canal in lieu of penstock or open flume cannot be stated now, but it appears doubtful. This water power location requires considerable survey and study to ascertain economic development. The water shed area common to Conquering Rapids, Thunder House Falls, Stone Portage Rapids and the Long Rapids is about four thousand square miles (noted as 6,500 square miles in 1911 Commission of Conservation Report).

(Note—Datum of elevations is base of rail at centre of bridge at Mattice as 750 feet.)

Below the Long Rapids there is no possibility of water power development on the Missinaibi River. The banks are fifty to one hundred feet high in clay as far as the Opazatika River, eighty miles from the north boundary of the Township of Sankey. Below this the banks of the river are fifteen to forty feet high in clay which is the same formation as throughout the clay belt.

From the foot of the Long Rapids to the mouth of the Mattagami River there are numerous rapids and gravel bars, work being arduous, both ascending and descending at all stages, except at high water period. This position is safe only for men expert with the pole and canoes cannot be loaded to full capacity.

Indications show that the greater part of the Missinaibi River region has been visited years ago by fire, destroying what was at one time a wonderful forest. Great areas of timber have since grown up, such as poplar to fourteen inches, spruce to twenty inches and balsam and birch, but there still remains many places of almost barren land covered only by heavy growths of small poplar.

OPAZATIKA RIVER.

The Opazatika River has throughout this survey an average width of five chains. From the north boundary of the Township of Idington the river runs almost direct north to Allan Lake about fourteen miles between clay banks. Allan Lake is about two miles long, east and west, and its area is about two square miles. A short stretch of about one mile east and west is the connection to Zadi Lake which is two miles long, east and west, and averages about one mile in width. All this distance is easy navigation for canoes or motor boats. Zadi Lake is partly in the Township of Neeley, District of Algoma, and partly in Township of Nixon, District of Timiskaming. From the foot of Zadi Lake for five miles down stream the river flows, east and north, to Eleanor Lake, and the water is swift with one portage.

Eleanor Lake is about three miles long varying in width from ten chains to one-half mile and lies east and west. About a mile easterly down stream is Neshin Lake about one and a half miles long, and lies northeast and southwest; from foot of Neshin Lake the river runs direct north three miles to the head of Opazatika Canyon with easy navigation for canoes. There is a fall twenty-eight feet in about thirty chains, a sort of chute. About two miles north is Indian Signs Falls, a drop of nineteen feet. From here the river runs westerly for about four miles, then turns sharply to the north and runs almost direct north from the point of the Missinaibi River. All this distance the water is swift, consisting of numerous rapids and chutes. About seventeen miles down stream from Indian Signs Falls is Mareva Falls a drop of 27.2 feet. Breakneck Falls as shown on plan has fifty-three feet of a drop, and is the best falls in the river, but does not appear to be a feasible water power proposition in the near future. Below this point the water is swift, with no marked falls to the Missinaibi River. The last thirty miles of the river are high clay banks from fifty to one hundred feet high.

There are some very good areas of timber along this river such as poplar to fourteen inches, spruce to twenty-four inches, balsam, birch and cedar. Similar to the Missinaibi River region the country has been fire swept years ago, destroying large tracks of virgin forests which have since grown up to a size to be of merchantable value. Great areas of almost barren land still remain covered only with small poplar.

I have the honour to be, Sir,

Your obedient servant,

C. R. KENNY,

Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ont.*

Appendix No. 22.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF SUDBURY.

SOUTH PORCUPINE, ONT., January 23rd, 1922.

SIR,—I have the honour to submit the following report on the survey of certain township outlines in the District of Sudbury, north of the Canadian Pacific Railway, made by me under instructions from your Department, dated May 5th, 1921.

The survey was commenced at the northwest angle of Township No. 3, as directed in your instructions, and from this point the first meridian was run north astronomically to the southerly limit of the Township of Vrooman, and the second meridian was run north astronomically from the northeast angle of the said Township No. 3, which is also the northwest angle of the Township of Muldrew, to the southerly limit of the Township of Westbrook.

From the six, twelve and eighteen mile points on this second meridian, base lines were run eastward, as chords of parallels of latitude, to the west limits of the Township of Shelley, Blewett and Hennessy. Between the first and second meridians the base line at the six mile point was run eastward from the first

meridian; at the twelve mile point the base line was run westward from the second meridian, and at the eighteen mile point the base line was run eastward from the first meridian, always as chords of parallels of latitude.

The survey was carried out in strict accordance with your instructions, the lines being well opened out and blazed, and carefully chained, a clinometer being used on all grades and the horizontal distance calculated. The iron and the wooden posts were properly placed at the designated points, and the required mounds constructed, the wooden posts being of the most durable wood obtainable, six inches square and properly carved.

The entire country enclosed by these outlines is rough and broken with high hills, there being many lakes, streams, swamps and muskegs, except in the northerly part of Inverness and Edinburgh, where the country is undulating.

SOIL.

The soil throughout almost the entire area is a sandy loam, and not well adapted for agriculture.

TIMBER.

The southern part of Battersby Township has been recently burned, but there is a small stand of good red and white pine along the Spanish River. A dense growth of small jack pine, spruce and poplar covers the westerly part, and there is valuable spruce and poplar and jack pine in the northerly and south-easterly parts of this township.

There is a thick growth of small jack pine, spruce and poplar in the greater part of Dublin Township, apparently with some large scattered white pine in the northeast.

The Townships of Marquette, Baynes, Paudash, Brebeuf, Edinburgh and Inverness appear to be covered with a fair growth of spruce, jack pine, birch and poplar of valuable size, and scattered white pine up to twenty-four inches, except on the west side of Paudash where there is an old burn which is now covered with a dense growth of small timber of the same varieties, and in the north-westerly part of Inverness where there is a recent small burn.

MINERALS.

Granite was encountered throughout the survey and no indications of economic minerals were observed.

FISH AND GAME.

Indications and works of fur-bearing animals were common, and the animals, bear, beaver, mink and muskrat were frequently seen.

Moose were very plentiful, and occasionally a red deer could be seen.

The lakes and streams seemed to abound with pike which were easily taken at any time.

I have the honour to be, Sir,

Your obedient servant,

CHAS. V. GALLAGHER,

Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 23.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF SUDBURY.

NORTH BAY, January 7th, 1922.

SIR,—We have the honour to submit the following report on the survey of certain township outlines in the District of Sudbury, made by us in accordance with instructions from your Department, dated May 6th, 1921.

Leaving North Bay on the 9th of June, with our party, we proceeded to Ramsay Station on the Canadian Pacific Railway, where we had previously sent out supplies and equipment. From this point we portaged along the east boundary of the Townships of Cavell and Edith to the northeast angle of the Township of Edith, which point had been established in our survey of 1920, as the adjacent angle of four townships, i.e., Edith, Fingal, Osway and Esther. This point is in a spruce swamp and is marked by a spruce post bearing the township names, referenced by two bearing trees and witnessed by an iron post and witness monument, thirty-six chains west astronomically therefrom. From this point we commenced the survey.

The first procedure was to get an astronomical observation on Polaris for azimuth. Having made certain of the bearing we ran west astronomically one mile and twenty-five chains between the Townships of Edith and Esther. From the same point of commencement, we then ran north astronomically between the Townships of Esther and Osway, six miles and nine links to the line run in 1920 forming the south boundary of the Township of Fenton. Returning to the line between the Townships of Esther and Edith, where we had left off, we continued this line west astronomically to the Woman River. Leaving this line we proceeded by way of the Woman River to the southwest angle to the Township of Edith. From this point we ran north astronomically between the Townships Number 18 and Edith, and intersecting our first base line at six miles two chains and ninety-nine and a half links, which point of intersection established the adjacent angle of the four Townships, 18 Edith, Esther and Fawn. We then continued the line north astronomically between the Townships of Esther and Fawn, six miles and forty-six links, where we intersected the south boundary of the Township of Garnet. Returning to our first base line, where we had discontinued it at the Woman River, we produced it west astronomically between the Townships of Fawn and 18, to the Meridian run by O. L. S. Speight in 1909. This completed this portion of the work, which had proceeded very slowly owing to the excessive heat and the difficulty of getting and keeping men at this time of the year.

We then travelled by way of the Woman River to the Woman River Station on the C. P. R. thence to Biscotasing Station and from there proceeded with a reinforced party by canoe via Biscotasing Lake and Flying Post Creek to the southeast angle of the Township of Arbutus, which was also established in our survey of 1920, and marked by an iron post, jack pine post, pits and mounds. From this point we ran a second base line east astronomically between the Townships of Yeo and Smuts a distance of six miles. At this six mile post we established the adjacent angle of the four Townships, i.e., Yeo, Smuts, Invergarry and Chester, from which we then ran south astronomically between the Townships of Smuts and Invergarry one mile. Returning to the southeast angle of Arbutus Township we ran south astronomically between the Townships of Alcona and Smuts six miles, and at this six mile post we established the southwest angle of

the Township of Smuts, from which we ran a third base line east astronomically along the south boundary of the Township of Smuts and continued east astronomically along the south boundary of the Township of Invergarry to the west boundary of the township of Vrooman. We then returned to where we left off on the line between the Townships of Smuts and Invergarry and continued running this line south astronomically six miles and eight links, where we intersected our third base line forming the south boundary of the Township of Smuts and Invergarry. We then returned to the northeast angle of the Township of Smuts and continued our second base line east astronomically between the Townships of Chester and Invergarry to the west boundary of the Township of Benneweiss. Again returning to the northeast angle of the Township of Smuts, we ran north astronomically between the Townships of Yeo and Chester. We then travelled across country to the northeast angle of the Township of Arbutus, from which point we ran east astronomically between the Townships of Yeo and Potier six miles and twenty-eight links, where we intersected our meridian between Yeo and Chester, and continuing thence east astronomically between the Townships of Chester and Neville to the west boundary of the Township of St. Louis. We then returned to our last mentioned meridian and continued running it north between the Townships of Potier and Neville. We then travelled across country to the southeast angle of the Township of Frater, from which point we ran a base line east astronomically between the Townships of Somme and Potier, and Somme and Neville to the southerly production of the west boundary of the Township of Jack, where we terminated our survey.

All lines were well opened out and blazed in the regulation manner. Iron posts were planted where shown on our plan of the survey and at each of these, pits and mounds were constructed, except where such iron posts were planted as witness posts, then circular trenches and mounds were constructed in the prescribed manner. Wooden posts of a good material, bearing the number of the mile carved thereon on the side of the post nearest the initial point of the line, were planted at each mile and when such mile point came in a lake they were planted in the line on the nearest shore and marked so as to show their position. The mileage, however, was not marked on the wooden posts at township corners, but the township names were inscribed. Where an iron post was planted a wooden post as also planted near the iron post, but in all cases the iron post was planted to mark the true point.

Frequent astronomical observations were taken, the records of a number of which are appended, for the purpose of verifying the course of our lines. All north and south lines were run as true meridians, while the east and west lines were run as chords of latitude passing through the township corners. The magnetic declination was frequently observed, the average being about seven degrees west.

The country embraced by both the east and west portions of the survey is, generally speaking, rolling or hilly with some hills reaching the height of two hundred feet.

RIVERS.

No rivers of any size were met with, the Woman River, being the largest, which is very crooked and for the most part shallow and sluggish with many rapids and log jams. This river is shown on our plan running northerly through the Townships of 18, Edith, Fawn and Esther, and our line crosses it no less than ten times.

LAKES.

The lakes were very numerous in the country covered by the east portion of the survey. The principal ones being Biscotasing, in the southerly part of Smuts Township, Schist lying both in Potier and Yeo Townships, and Mesomekenda extending south across the Township of Neville and into the Township of Chester. Schist Lake is very shallow in most places and contains a great number of islands. Biscotasing Lake also contains a great number of islands and is apparently deep with rocky shores. Mesomekenda Lake is a beautiful body of deep water with high banks and has few islands. The water in this lake has been raised several feet by a dam, which accounts for some drowned timber along the shores.

SOIL.

There is very little, if any, agricultural land in the whole of the territory covered by the survey. The soil is generally of a light sandy or gravelly nature and is in many places filled with boulders. Many rock outcrops are also in evidence.

TIMBER.

The only timber of commercial value met with was in the Township of Neville and along the north part of the Township of Chester, also in the north-east corner of the Township of Potier and along the south boundary of the Township of Somme. The timber in this area consists chiefly of jack pine up to eighteen inches in diameter with spruce, birch, balsam and poplar from five to fourteen inches in diameter, while along the Mesomekenda Lake some red pine of good quality was observed. The balance of the country, with the exception of occasional swamps, which are timbered with spruce and cedar up to fourteen inches in diameter, has been run over by a very destructive fire, some twenty five or thirty years ago, and is now covered with a dense growth of small jack pine, birch, spruce and polar.

MINERALS.

No precious minerals were observed, but considerable work of prospectors, now abandoned, was seen along the south shore of Schist Lake, where the formation is a schist rock with numerous veins of white quartz. The rock formation met with throughout the survey was generally of a granite gneiss.

WATER POWERS.

No water power capable of being developed was met with.

GAME.

Moose were very numerous and an occasional red deer was seen. Bears were also plentiful. Considerable indications were seen of beaver and the smaller game also abounds. Fish were very plentiful in all the lakes we had the opportunity to try, but the only kind caught were pike and pickerel.

Accompanying this report, we submit a general plan on mounted paper, a timber plan on linen, field notes and our account in triplicate.

We have the honour to be, Sir,

Your obedient servants,

McAUSLAN, ANDERSON & MOORE.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 24.

SURVEY OF TOWNSHIP OUTLINES IN DISTRICT OF SUDBURY.

TORONTO, December 27th, 1921.

SIR,—We have the honour to submit the following report on the survey of certain township outlines at the head waters of the Missinaibi River in the District of Sudbury, performed under instructions from your Department, dated 15th April, 1921, and supplementary instructions dated 14th July, 1921.

Upon receipt of the instructions, we proceeded with the purchase of supplies and the organization of the necessary party, and on the 4th June, two canoe loads of supplies were sent from Missinaibi Station on the Canadian Pacific Railway to Little Missinaibi Lake, which lay in the centre of the projected work. These supplies were sent in via Dog Lake, Crooked Lake, Missinaibi Lake and the Little Missinaibi River. On the ninth of the month the main party left Missinaibi by way freight for mileage $141\frac{1}{2}$ on the C. P. R. From that point Bolkow Lake was reached over a half mile of waggon road, and through the courtesy of Messrs. Austin and Nicholson, the party and supplies were towed eight miles to the head of the lake, by one of the launches used by them on the lake. The southwest corner of the Township of Lang, where our work commenced, is about three miles east of the head of the lake, and by the night of the tenth the party was camped on the banks of Rock Creek, within reach of the corner.

The next day a commencement was made on the season's work, and the line between Townships Forty-one and Addison was carried south to the shores of Rock Lake, from the corner of the Township of Lang, defined by us the previous summer. The meridian between Townships Forty-one and Addison was continued south to intersect the north boundary of the Township of Buckland, run in 1920 by O.L.S. Fitzgerald. The intersection is eleven chains and thirteen and a half links (11.135 chs.) east of the northwest corner of that township.

Posts of the most durable wood obtainable were planted at the end of each mile and marked with the mileage from the north end of the line. At the end of the third mile, and at the north boundary of the Township of Buckland, the iron posts, supplied by your Department, were planted, and referenced with pits and mounds according to your instructions.

The boundary between the Townships of Missinaibi and Abbey was then run eastward a distance of six miles, from the northeast angle of the Township of Lang. The six mile point fell in the Little Missinaibi River, just where it leaves the lake of that name. Wooden witness posts were planted on the banks of the river, where they are intersected by this boundary and by the other boundaries run from the corner. The iron post was planted on the meridian between the Townships of Missinaibi and Admiral, six chains north of the corner. The boundary between the Townships of Abbey and Clifton was next run south from the six mile point to the intersection of the boundary between the Townships of Abbey and Addison, which was run eastward from the southeast angle of the Township of Lang. This corner also lay in water, there being at the point of intersection, a pond about five chains across. The iron post was planted south of the pond and wooden posts on the other three sides. The meridian was then continued south between the Townships of Addison and Chaplin to the north boundary of the Township of Ramsden. Returning to the southeast corner of the Township of Abbey, the line between the Townships of Clifton and Chaplin was run eastward as far as the three mile post.

The party then proceeded north across Little Missinaibi Lake to the northwest corner of the Township of Clifton, and ran the line between the Townships of Admiral and Clifton. From the eastern extremity of this line, the line between the Townships of Admiral and Busby was run north four and a half miles, and the line between the Townships of Busby and Brutus run eastward as far as O.L.S. Fitzgerald's meridian, a distance of somewhat more than three and one-quarter miles. Returning to the northwest corner of the Township of Brutus, the meridian between the Townships of Brutus and Clifton, and Chaplin and Manning, was carried south to the north boundary of the Township of Mageau. The line between the Townships of Clifton and Chaplin was completed, and the line carried eastward between the Townships of Brutus and Manning, to O.L.S. Fitzgerald's meridian.

The party then proceeded again to the northeast corner of the Township of Abbey and from there ran north between the Townships of Missinaibi and Admiral, to Missinaibi Lake. The base line between the Townships of Leeson and Brackin, run by us in 1920, was then picked up and carried east across Lake Missinaibi to begin the base line between the Townships of Baltic and Missinaibi. This line was run eastward to intersect the meridian between the Townships of Missinaibi and Admiral and that meridian was carried north between the Townships of Baltic and Barclay to Niven's base line of 1899 and 1900, from that intersection.

From the east end of the base line between the Townships of Baltic and Missinaibi, the line between the Townships of Barclay and Admiral was run eastward to the meridian between the Townships of Admiral and Busby. This meridian was continued north between the Townships of Barclay and Calais, to Niven's base line. From the northeast angle of the Township of Admiral, the boundary between the Townships of Calais and Busby was run eastward six miles. From the six mile post, the east boundary of the Township of Calais was run north to Niven's base line, and the meridian was then produced south to the north boundary of the Township of Racine, along the east limits of the Townships of Busby, Brutus and Manning, while the base lines between these townships were completed easterly to the meridian. This work was finished on 9th September.

All lines were well opened out and carefully blazed. Where possible, cairns of stones were built around the posts planted, and except in a few instances where suitable trees were not available, each post was referenced to two bearing trees. Wooden posts were selected from the most durable material available in the vicinity of the point to be marked, and the posts themselves were firmly planted. The iron posts were carefully placed and the trench or mounds witnessing each post were constructed, as far as possible, to conform with the letter and spirit of the instructions.

All the east and west lines were run as chords of the parallel of latitude passing through the corners of the respective townships. Frequent observations were taken on Polaris throughout the survey and the notes of a number of these are embodied in the field notes.

GENERAL FEATURES.

The townships outlined during the summer's work are almost entirely in the territory drained by the head waters of the Missinaibi River. Arms of Missinaibi Lake fill the bottoms of two parallel valleys running northeasterly through the Townships of Baltic, Missinaibi and Barclay. The drainage basin

of the Little Missinaibi River occupies the central, southerly and westerly portions of the area surveyed, while Hay Creek and its tributaries drain the water from the northeasterly townships directly into the Missinaibi River, a few miles below the foot of Missinaibi Lake. Little Missinaibi Lake, a straggling sheet of water with numerous long winding bays, lies in the southwesterly portion of a broad depression running in a general northeasterly direction across the Townships of Addison, Clifton, Busby and Calais. A low divide separates the waters of this depression near the northeast corner of the Township of Clifton, and the waters to the southwest flow in a general northwesterly direction, through a gap in the ridges, to Missinaibi Lake. This stream is the Little Missinaibi River. The waters of the northeasterly part are the source of Hay Creek.

The terrain of the townships is of the character common to most of the lands along the height of land between the waters of the St. Lawrence and Moose Rivers. Ridges of Laurentian rock rise from two hundred to three hundred feet above the lakes, and the lower lands, where not exposing similar rock, are covered with coarse glacial deposits of sand and gravel.

The country abounds in lakes. Of these, the largest, exclusive of Missinaibi Lake, is Little Missinaibi Lake, mentioned above, which has an extreme length of about ten miles. There are several others, however, from three to four miles long.

TIMBER.

Fire swept through the Townships of Abbey, Missinaibi, the north half of Admiral, the south part of Busby, and part of Calais, about twenty years ago. In consequence, a large part of the timber in these townships has been destroyed, and there is now growing up a dense second growth. Much of this new growth is jack pine, and in time, provided the district is not again visited by fire, there will be much valuable tie timber produced. The three southerly townships, Addison, Chaplin and Manning, contain to-day the most valuable timber. Good stands of jack pine and spruce were found on each of the meridians bounding these townships, while scattered specimens of white pine were seen on the west boundary of the Township of Manning.

In general the quality of the timber over the rest of the area surveyed is not quite so good, but numerous more or less extensive groves of good spruce and jack pine were interspersed between areas sometimes heavily wooded with balsam, poplar and birch, but more often covered with somewhat scattered timber rising above a heavy growth of alder, maple and hazel underbrush.

ROCK.

The rock formation is of Laurentian origin and is mainly granite, though occasional outcroppings of diabase, gneiss and feldspar were seen. The area did not seem quite so promising from a mining standpoint as that surveyed in the previous year, but the rock is of the same general character, and it is possible that thorough prospecting will disclose mineral bearing formations worthy of attention by the miner.

SOIL.

These townships are entirely unsuitable for agriculture. Where the rock is not exposed, the surface is covered with sand, gravel and boulders. There are, however, extensive marsh lands on either side of Hay Creek, in Calais Township, which might possibly be utilized some day for the production of hay.

WATER POWER.

Little Missinaibi River is the only stream in these townships capable of power development. This stream drains about one hundred and fifty square miles of territory. It has a potential storage basin of considerable size in Little Missinaibi Lake, and in the five miles from that lake to its outlet in Missinaibi Lake, there are two falls and a long series of rapids to produce adequate head for power purposes.

FISH AND GAME.

Moose seem to be extremely plentiful, and in June were seen in all the lakes and streams. Sixteen of them were counted at one time feeding in one of the small lakes. The lakes and streams were well stocked with pike and pickerel, but so far as we were able to discover, no trout or bass are in the waters. The central and westerly townships have been apparently thoroughly trapped during the past few years, but in the Townships of Calais, Busby and Brutus, many signs of beaver activities were seen and each creek and pond apparently had its colony.

CANOE ROUTES.

Missinaibi Lake, mentioned above, forms part of the historic route between Moose Factory and Lake Superior, and was, in the early days of this country, one of the main thoroughfares for the transports of the Hudson's Bay Company. Little Missinaibi Lake may be reached by the Little Missinaibi River, from either Peterbell on the Canadian National Railways, or Missinaibi on the Canadian Pacific Railway, in about a day and a half, or during high water, it may be reached with equal or greater facility via Bolkow and Angigaming Lakes from mileage $141\frac{1}{2}$ on the Canadian Pacific Railway. There is a somewhat indifferent canoe route up Hay Creek, and by a chain of lakes south to Lake Seseginika, through the easterly tier of townships.

We have the honour to be, Sir,

Your obedient servants,

SPEIGHT & VAN NOSTRAND,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 25.

SURVEY OF BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

PORT ARTHUR, ONT., December 31st, 1921.

SIR,—I beg to report that in accordance with your instructions dated April 15th, 1921, we have completed the survey of certain base and meridian lines in the District of Thunder Bay.

This survey was commenced on the easterly shore of Muskeg Lake at a birch post planted by O.L.S. Fawcett at a distance of twenty-nine chains east from the southeast angle of Grand Trunk Pacific Block No. 4. From this point

the first base line was run east to intersect the southerly production of the westerly boundary of the Black Sturgeon River Pulp and Timber Limit, surveyed by our firm in 1918. This line was run in six mile chords of a parallel of latitude.

From the sixth to eighteenth mile posts on the first base line the first and second meridians, respectively, were run north astronomically. From the twelve mile post on the second meridian the second base line was run east to intersect the westerly boundary of the Black Sturgeon River Pulp and Timber Limit, and from the same point was also run west to intersect the first meridian and continued west to intersect the easterly limit of Grand Trunk Pacific Block No. 5. This base line was also run in six mile chords of a parallel of latitude.

A standard iron post was planted at the point of commencement. The first mile post was planted at a distance of 51.00 chains east from this point. The numbering of the mile posts on the first base line is from one to six to the first meridian, from one to twelve between the first and second meridians and from 1 to 17M+78c.81 east of the second meridian. The meridians were numbered from south to north from one to twelve. The second base line was numbered from 1 to 17M+75c.50 east of the second meridian, from 1 to 11M+76c.86 between the second and first meridian, from 1 to 14M+68c.25 west of the first meridian. Iron posts were planted at the points indicated in your instructions. It was found necessary to erect seven witness monuments, and the unfortunate part of this is that four of these were for intersections.

SURVEY LINES.

The lines established by an Ontario Land Surveyor were the boundaries of Grand Trunk Pacific Blocks 4 and 5, and the west boundary of the Black Sturgeon River Pulp and Timber Limits. The former were surveyed by O.L.S. Fawcett in 1907, and the latter by ourselves in 1918. The south easterly corner of Grand Trunk Pacific Block 5 has been burned over since the lines were run, and we had some difficulty in locating it. The other lines are all in good condition.

We also found the trial lines of the survey of the Nipigon Savanne route of the Canadian Pacific Railway. These were crossed in the fifth and sixth miles of the first meridian. From here the general course of these lines is easterly to a point about three miles north from the easterly end of the first base line.

TOPOGRAPHY.

The country generally is not rough, the hills seldom being over one hundred feet in height. From the heights of the hills shown in the field notes a fairly accurate profile of the lines could be plotted as these heights were obtained by calculation from the clinometer readings.

The westerly eleven miles of the second base line is nearly all level country, there being numerous shallow lakes and long stretches of muskeg and swamp. The roughest country is towards the easterly end of the second base line.

SOIL.

The agricultural possibilities of the area covered are rather poor. The soil for the most part ranges from sand to sandy loam. The best soil is in the valleys of the Dog and Des Iles Rivers. The quality of the soil improves gradually towards the east. On the second base line west of the second meridian the soil is nearly all sandy loam and the subsoil in the swamps is of a sandy

nature. This belt extends through to the railway and should make good grazing land judging by the growth of grasses.

There are no outcrops of rock over extensive areas but the soil is shallow over the greater part of the ground covered and boulders are to be found in nearly all of it.

ROCK FORMATION.

Granite and granite gneiss are the principal rocks. The only mineral found was magnetite. This was first indicated by the marked variation of the needle near the eleventh mile east of the first meridian on the first base line. Samples examined appeared to contain a good percentage of iron. We understand that several mining claims have been staked on iron formation in the region west of Little Pine Lake and that a favourable report has been made on the same.

TIMBER.

The timber plan accompanying this report shows the areas of burned country and the areas of green timber. The area shown as brule had been burned over at least twice and there now remains a very small amount of green timber. This area is now covered with a healthy growth of poplar and jack pine with a dense growth of underbrush. The area shown green comprises two distinct forest areas. One of these is covered with a stand about twenty-five to thirty years old. In this poplar and jack pine are the main species and there is about an equal amount of each. Birch and spruce are the other species. There are also considerable areas of swamps containing valuable spruce within the area above mentioned. The remaining portion of the area coloured green contains timber of sufficient size to be marketable. Of this the best timber is within a short haul of the Dog River and the west branch of the same. On the high ground jack pine is the predominant species and this is of sufficient size for the manufacture of ties. On the low ground is found good stands of spruce of sufficient size for pulpwood. This timber could all be brought down the Dog River, but it would mean a drive of two seasons to land it at the railroad as the lower stretch of the Dog River is flooded for several miles back from Dog Lake and there are several small lakes to be crossed.

The timber near and along the west boundary of the Black Sturgeon River Limit is larger than that along the Dog River, but at present is not very accessible to any good waterway. Spruce is the main species found here, and it ranges up to twenty-four inches in diameter, but there is a great amount of it that is decayed and much has been brought down by storms. In this section there was a considerable area burned over during this year. The fire that destroyed it was first noticed about July 4th, and from bearings taken would appear to have started up about midway between the two base lines. The fire continued to burn for about two weeks, but as there was very little wind during the time it is not likely that a larger area than that shown was burned. It has not worked as far south as the last base line by the time that we had completed this, but there is a chance that it may have crossed it later. The cause is unknown.

ROUTES, WATERWAYS, ETC.

Our supplies were all taken in via Kelly on the G. T. P. division of the Canadian National Railways. From the railway a good portage of about one mile leaves at near the seventy-fifth mile board. This leads to Lower Kaogomok Lake (known locally as Canoe Lake). The route then is via Muskeg River to

Muskeg Lake and then to Dog River. There are no rapids on the Muskeg River between Kaogomok and Muskeg Lakes though there is a portage that saves considerable time when travelling light. From Muskeg Lake to Dog River there are numerous portages and this portion of the river would be very difficult to travel in the late summer.

Our main cache was established near the mouth of the Muskeg River, and from here supplies were carried to the main party via Des Iles River. The portages on the Dog and Des Iles Rivers are fairly well mapped, though on the latter it is necessary to make more portages during the dry months. Both the east and west branches of the Dog River were travelled and improved. There is a much greater volume of water coming down the west branch.

We did not use the canoe routes on the easterly eighteen miles of the two base lines. The routes on the first base line are in a north and south direction, and so of no use to us. The Muskrat River is about seven feet deep at high water, but at the time that we crossed it there was scarcely a foot of water, and the river is filled with driftwood. On the second base line the portage route to the east was found but was not used. The route from Lac Des Iles to the east branch of the Dog River was found and used. It is mapped fairly well though our men reported that there were new ones now used in some places.

Lac Des Iles is one of the finest lakes that we have seen in this district. There are over one hundred islands and the water is clear, though not of great depth.

The route we used in coming out was via Grassy Narrows, Ricetalk, Upper and Lower Kaogomok Lakes, Ricetalk Lake is very shallow and is completely filled with wild rice and forms a good feeding ground for wild fowl.

Moose, deer and bears are quite numerous as are also the smaller fur-bearing animals. Most of the country is trapped. The only fish caught were pike, though it is likely there are trout in Lac Des Iles. Partridge were particularly numerous.

The magnetic variation ranges from zero and one degree east. The only marked difference was as mentioned previously under "rock formation."

No falls of any size were found on the rivers, and it is unlikely that there are any water powers of any consequence within this work.

The heat during the months of June and July was excessive, especially as we were for a considerable part of this time in fairly open country. There was no frost during the months that we were in the field.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS AND BENNER.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

*Appendix No. 26.*SURVEY OF LOWER FRENCH RIVER, IN THE DISTRICTS OF PARRY SOUND AND
SUDBURY.

LITTLE CURRENT, ONT., January 24th, 1922.

SIR,—I have the honour to submit to you the following report on the survey of the Lower French River, in the Districts of Sudbury and Parry Sound, which survey includes the western outlet, known as the Bad River, the Middle Outlet, or Main French River; the outlet known as Bass Creek; and the Eastern Outlet. The survey also includes the Pickerel River, and the large island 3382 T.P. which is bounded on the north and west by the Wahnapiatae River. The survey extends from the Georgian Bay up to near the east boundary of the Township of Mowat. I also retraced the boundaries of the town plot of Copananing, as instructed.

Instructions for the above were issued from your Department, dated Toronto, May 16th, 1921.

Proceeding from here with my party on the 18th of June by motor boat, I arrived at Point au Girondine the same evening, and on the following Monday, 20th June, we arrived at our first camp, a short way up the Bad River. The work at the mouth of this outlet was commenced the following day.

The survey was made by means of a stadia. The rodman also used a stadia and checked the readings on all the main stations which eliminated almost entirely the chance of error in the main traverse.

Frequent observations of Polaris for azimuth were also made, and the bearings deduced for the purpose of checking the bearings as we proceeded. On the railroads we made several tests of the stadia readings on carefully measured distances with a steel tape, the results of which are shown in the returns of survey. The necessary correction has been applied in plotting the traverse.

Cedar posts, mostly about five or six inches square, were planted at prominent points, from about forty to eighty chains apart. Cedar posts were also planted on all islands where stones were convenient to mound them. The numbers were cut on them in Arabic numerals. These posts are shewn in the field notes and plan. On the large islands at several of the numbered posts, a post was also planted with the number of the island cut thereon, and shewn in the notes. Beside numbers posts on islands are marked T.P.

With only one or two exceptions, all posts were well mounded up with large stones, the mounds being from four to six feet at the base, and at least two feet high. The posts were planted well above the high water.

On account of the scarcity of cedar in several localities, it often required the services of an extra man to keep us supplied with posts.

Iron bars, one inch square, were also planted at the places indicated in the field notes and plan.

A peculiarity observed in the retracing of the boundaries of the town plot of Copananing, and several of the interior streets which we also retraced, was that no original posts or traces of them whatever could be found in the low lying places between the rocks.

The measurements shewn on the boundaries of the Indian Reserve in the Township of Mowat were made by me in a re-survey of the Reserve for the Department of Indian Affairs in 1912.

In the plotting of the Canadian Pacific Railway location from records furnished me across Island 3464 T.P., it will be observed that it closes fairly well

with my traverse when the bearings of the tangents have been adjusted to agree with what I found the actual bearings to be at the crossings of the French and Pickerel Rivers. The short spirals I have included with the tangents. The plotting of the Canadian National Railway location from records also furnished me closes fairly well also.

In one of the larger outlets of the Bad River, Stations 52 to 53, I have made a rough estimate of the horse-power at a fall. The other outlets of the Bad River are very broken and irregular, and until the water is much higher an attempt at an estimate would be a very rough approximation. I might say too that while working in that vicinity the water suddenly lowered considerably, caused no doubt by the holding up of the water on the Wahnapiatae in driving saw-logs. An estimate was also made at the falls at Station 400, on the main French River. At Station 334, at the east end of the big island 3464 T.P., where there is some fall and volume in high water, there was a mere trickle of water. At Station 343 at Horseshoe Rapids, there was a small volume going through, but probably a much more accurate estimate could be made in high water. The estimate at this latter point was overlooked, however. At Station 203 on the fall near Copananing an estimate was also made. The above estimates accompany the field notes.

The whole country is Laurentian rock. In the lower levels adjoining Georgian Bay, it is a succession of parallel rocky ridges in a southwesterly course, and from about six to thirty feet high. In some of the Copananing vicinity the ridges are very tedious to travel through. Farther up it changes into a rolling country with a few precipitous hills.

Through the whole country there are small patches of tillable soil mostly sand of all grades of fineness and fertility, with occasionally gravel and boulders. In the clearings it was observed that fairly good crops were growing. In the valleys of the Wahnapiatae River and Beef Tea Creek there is apparently good clay land, and mostly devoid of much rock. There are apparently no considerable tracts of tillable land. The settlers at the C.N.R. crossing on the Pickerel River mentioned that there are in that vicinity some large patches of good land on Island 3464 T.P.

The timber consists principally of jack pine ranging in size from a scrubby, two inches in diameter, adjoining Georgian Bay, and in other small tracts, to a general distribution through the region traversed of a diameter of from four to ten inches. Poplar and white birch, balsam, spruce, and an occasional thicket of cedar, all up to a diameter of about ten inches, are found generally throughout. In many places a new growth of white and red pine of from three to six inches diameter was observed. There will probably be in a few years a considerable amount of merchantable pine. There are groves of very good large white and red pine in several places. In the valleys of the Wahnapiatae River and Beef Tea Creek, in addition to the timber mentioned, except jack pine, there is considerable soft maple, ash, Balm o' Gilead, elm and some red oak. There are a few patches of old brule, here and there, in the whole country traversed.

Accompanying the returns I have prepared a timber map on which I have shewn in colours the distribution of the various timbers. All the timber is of good quality, except that probably a great deal of the scattered large white and red pines are faulty.

Some hard maple bush was observed at Location D.B. 3 on Island 3464 T.P. This is a very fine location.

The country generally is very attractive to the tourist. With the exception of the immediate vicinity of Georgian Bay, and probably one-half at the most of

the north shore of the big island 3464 T.P. which is too precipitous, the shores of the whole country nearly are very suitable for cottage sites, a great proportion of them which would be especially attractive. On the French River between Stations 400 to 414 on the north side of the big island 3464 T.P. referred to on account of the rapids at those stations, that part of the river is inaccessible to motor craft.

Sand beaches so essential to summer cottages are very numerous, and in fact are to be found almost everywhere. For the greater part the Pickerel River and its expansions at Islands 3512 T.P. and 3520 T.P. is particularly desirable for cottages.

There are also a considerable number of nicely wooded islands very suitable for cottages. I have mentioned these specially in the index. There are a good many islands too, not so well favoured, that would be considered fairly desirable.

Black bass, pickerel and pike are very abundant.

A few rattlesnakes, apparently the *Crotalus Horridus*, were met with near the shores of Georgian Bay. They are perhaps the most numerous on the west side of the main outlet of French River at the mouth. On the east side at French River village they are very seldom found, it is said. A short distance up the several branches of the river there are apparently none at all.

I have the honour to be, Sir,

Your obedient servant,

T. J. PATTEN,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 27.

SURVEY OF TIMBER BERTHS NEAR IGNACE, DISTRICT OF KENORA.

PORT ARTHUR, ONT., February 4th, 1922.

SIR,—In accordance with instructions dated August 22nd, 1921, and received September 9th, we beg to report that we left for Ignace on September 15th to survey certain timber berths.

The survey was started at the post planted by O.L.S. Stewart to mark the south limit of the right of way of the Canadian Pacific Railway on the west boundary of Township 22. An observation was taken here and the line run south, a traverse of the railway having first been made to connect this point with the four mile post on the Canadian Pacific Railway in order that the northeast angle of timber berth D could be fixed.

At a point on the west limit of Township 22, two miles and seventy chains south of the northwest angle thereof, a trial line was run east to connect with the southwest angle of location L.K. 84, the offset was measured and the true line run to form this portion of the north limit of the Walsh Tie Company's Limit.

At a point on the west limit of Township 22, five miles and twenty-six chains, fifteen and four-tenths links south of the northwest angle thereof, a line was run east thirty-two chains three and five-tenths links to the northeast

angle of timber berth D, this line was also run west two miles and forty-seven chains ninety-six and five-tenths links to the northwest angle of timber berth D, making a total distance of three miles. From the angles thus established lines were run south, the easterly limit being run south three miles and then west to intersect the west limit run south from the northwest angle as established above.

From a point on the west boundary of Township 22, five miles and thirty chains south of the northwest angle thereof, a line was run east to Ignace Lake forming the south limit of the Walsh Tie Company's Berth.

From a point on the west boundary of Township 22, six miles south of the northwest angle thereof, a line was run west six miles and seventy-four links to intersect the production south of the west boundary of Township 24.

The east limit of Township 22 was run by producing the line joining the iron bar planted on the north limit of the right of way of the Canadian Pacific Railway with the bar planted at the nine mile post by O.L.S. Stewart, it being impossible to get an observation at this point on account of cloudy weather.

At a point one mile and a half south of the nine mile post an observation was obtained and the line corrected.

At a point on the east limit of Township 22, three miles south of nine mile post, the southeast angle of the township was established and a line was run west to intersect the west limit of the township as run. From this latter intersection, being the southwest angle of Township 22, the west limit of the township was produced south two miles, thence a line was run west one and one-half miles, thence south four miles; thence east seven miles and forty-one chains and seventy-seven and seven-tenths links to intersect the production south of the east limit of Township 22.

From the southeast angle of Township 22 the east limit thereof was produced south six miles, two chains and fifty-eight links to the southeast angle of the Walsh Tie Company's limit.

From points on the production south of the east limit of Township 22, distant one and one-half miles and three miles, respectively, from the southeast angle of the said township, lines were run east; that run from the three mile point was run east two miles and forty chains and from this point a line was run north to intersect that run from the one and one-half mile point. Subsequently lines were run similarly from the half-mile and two mile points on the said production of the said limit, for the north and south limits of the W. J. Smiley Timber Berth and the line first run was used for that portion of the east limit covered by it, and this line was produced north to intersect the north limit of this berth.

From the northwest angle of Township 22 and the southeast angle of Township 24, a line was run west to intersect the west limit of Township 24, as established by O.L.S. Stewart and produced south. From this intersection a line was run south to intersect the line run west from a point in the production of the west limit of Township 22, distant six miles measured south thereon from the northwest angle of the said township.

Along the east limit of Township 22 and its production six miles south a line was found to have been run presumably by O.L.S. McMeekin, of Kenora; this is shown in the field notes, also a similar line along the south limit of Township 22 was found which is also shown in the field notes.

The lines were well cut out and blazed, those lines which formed part of the six-mile system being blazed on three sides and the others on two. The lines were posted every mile and at the corners of berths and the name of the

berth marked on the posts. Iron posts were planted as shown on the plan and field notes.

A timber plan is included in the returns which shows the nature of the timber as seen from the lines. Nearly all the area shown as having green timber on it has been cut over at some time, the country east and south of Ignace Lake particularly being full of old logging roads and lumber camps. Practically the only large area of timber which appears to be untouched is that portion lying south of Poplar Lake and an approximate line joining the east end of Poplar Lake to the two mile post on the east limit of Timber Berth D. These lumbering operations appear to have extended over a period dating from about twenty years ago up to the present time.

This area appears to be unsuitable for farming to any large extent, the soil being either swamp or sand and a large part is rocky. The portions shown as burnt on the timber plan are in general covered with a young growth of jack pine, poplar and spruce, and reforest themselves if not prevented by fires. The country is full of lakes of varying sizes and should be ideal from the point of view of the hunter and trapper, as it appears to be well stocked with game and fur-bearing animals.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS & BENNER,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 28.

SURVEY KENOGAMI RIVER, DISTRICTS OF THUNDER BAY AND ALGOMA.

FORT WILLIAM, ONT., February 17th, 1922.

Sir,—I have the honour to report that in accordance with your instructions of date May 2nd, 1921, to traverse the Kenogami River and its expansions, in the Districts of Thunder Bay and Algoma, I started out from Fort William on the morning of July 19th, with three men, via Canadian Northern Railway, having secured the necessary supplies and shipped them in advance to Long Lac. I wish to say, in explanation of the late start, that I was held here in connection with the straightening up of my late father's estate, and so was unable to start out at an earlier date.

I had made arrangements to secure the services of three Indians through the courtesy of one of the fur companies at that point, but when I arrived they were waiting to be paid their treaty money. This necessitated a further delay of two days, which we spent in getting supplies and outfit in shape to the pack, and in testing out the stadia.

On the morning of July 22nd we started downstream, and after we had covered the first mile from the outlet (which is very swampy, flooded in places and hard to get solid ground for stations), we found the traversing very good.

We ran across a Canadian Northern Railway location party during this first day's work, who were running trial lines across to the C. G. Ry.

The country tributary to the Kenogami, between Long Lac and Pine Lake, is low, fairly level and swampy back from the river. The soil is clay and clay loam covered with, on an average, a foot of moss and spruce of small diameter. Along the banks, the timber grows heavier, but this is noted on the plan, so I will not refer further to it here.

As we neared Pine Lake the country became rather undulating and fairly rocky along the banks of the river. We reached Pine Lake on the 3rd of August. This lake is divided into two,—the upper half is about nine miles long and runs, in a general way, in a northerly direction; the lower half is about five miles long and runs, in a general way, northeasterly. They are both fairly deep, with rocky bays and beaches, being most noticeable in its southerly portion of the upper half, where we ran across an old mining location, in fact there are indications of iron in all this formation.

The country surrounding Pine Lake is very hilly and rocky for about half a mile, and then level, swampy country, being densely covered with spruce of 6 inches to 12 inches diameter; near Pine Lake and Lower Kenogami,—balm of gilead, poplar, B. pine, spruce, W. birch and scrubby cedar are mostly noticeable. The soil is mostly clay and clay loam with sandy loam on the ridges, mixed with gravel in many cases and rocky for the most part. Back from the lake the clay is covered with one foot of moss.

The country in the vicinity of Arm Lake is much the same as around Pine Lake, only not quite so rocky. Proceeding downstream it is fairly swampy and open and on the north side is a brule which possibly extends to the C. G. Ry.

The country around the next lake expansion, in the vicinity of Fernow River, is very low and swampy. Spruce of three to twelve inches diameter growing rather densely around the lake.

As we approached the C. G. Ry., it became fairly rocky and we ran across several falls, the details of which I have set out in Schedule "A," attached hereto. We brought the traverse to the C. G. Ry. track on the 23rd August. Here my three Indians decided to quit. However, we carried the traverse on to the north boundary of Barlow Township. I was unfortunate enough to injure my only transit in a rapid above the track, so took the opportunity to run into Winnipeg and have it fixed, as my supplies for northern part of trip had not yet turned up, and I had, in addition, to replace three men.

On September 1st, we continued the traverse downstream, arriving at the Pagwachuan River on the 16th of September. The country tributary is, generally speaking, low and level and swampy, back from the river, clay soil covered with one foot of moss and spruce one to five inches diameter. After we leave the C. G. Ry., the banks become higher, forty to fifty feet in some instances, and are composed of clay and gravel. The river is very much wider, swift and shallow, although we had more water than in the Pagwachuan last season. There is some spruce of good diameter along the banks, and in places a very old brule with second growth timber, poplar and dense growth of willows. We ran into the big brule about Mile 110.

We started back upstream on the 18th September, arriving at the Flint River on the evening of 19th. The next day we started up the Flint River. This river has been well named by the Indians, "Pewahasibi" (Crooked River), it certainly is crooked and narrow, necessitating short stations, which slowed up the work considerably. Between the Moose River and the C. G. Ry. we had to fairly cut our way through the overhanging and intertwining cedar.

There is some very good spruce on this river, mostly in a small belt extending back about ten chains on an average from the river bank, then the spruce swamp with spruce one to five inches diameter.

On arrival at the C. G. Ry. my two transport men quit, and I continued on with the remainder of the party and two canoes.

The country from here to Flint Lake is level and swampy for the most part, and the great portion of it has been burnt over. We reached Flint Lake on Saturday, the 15th of October, after quite a strenuous trip, there being nineteen portages between the C. G. Ry. and the lake, the majority of which we had to open up. I do not believe this river is used even by the Indians as a canoe route. As we neared the lake we ran into a big marsh and it was exceedingly difficult to get solid ground for stations.

We had also run short of provisions, so I decided, in view of this fact and that ice had been forced in the marsh for several days, to return to the railroad, which we did, and entrained for Fort William on the 18th of October, arriving here the following day.

The notes of soil and timber, I have put on the plans in detail. I have not made a summary of the bearings and distances of courses as I had already put them on the plans using azimuth angles only for intermediate readings. I have summarized the report on water power and islands, with their descriptions and acreages, in Schedules "A" and "B," respectively, attached hereto. In my preliminary report on water power in the Townships of Goodwin and Barlow, I used my local cross sections for calculating the run off and the discharge was found to be excessive. The revised list, which I calculated on the basis of 4-10 c.f.s. average minimum discharge per square mile, I hope will be found satisfactory.

GAME.

The country between the C. N. Ry. and the C. G. Ry. abounds with game of every description, moose, bears and muskrats were plentiful; a few beaver, otter and mink were also encountered.

North of the C. G. Ry. although moose and caribou were numerous, we met with very few of the other fur-bearing animals. I, however, had the pleasure of seeing a white fox while making a trip up Caribou Creek. Speckled trout and pike also abound south of the C. G. Ry.

It will be noticed that on the plan there are a few islands without any designating letter. These are really only sand and gravel bars covered with a dense growth of long grass.

We suffered no severe mishap throughout the trip, although the canoes always suffer a good deal when readings are being given on the shores of the various lakes, which are invariably rocky. This is more especially realized when the lake is at all rough. We had quite a lot of rain during the season, but lost very little through it.

The plots of traverse of the Kenogami and Flint Rivers are now complete and are being forwarded to you with observations, accounts and vouchers in triplicate, all of which I hope will be satisfactory.

I have the honour to be, Sir,
Your obedient servant,

ROY S. KIRKUP,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 29.

CERTAIN BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

SAULT STE. MARIE, ONT., September 30th, 1922.

SIR,—I beg to submit the following report on certain base and meridian lines in the District of Thunder Bay surveyed during the summer of 1921, in accordance with instructions from the Department of Lands and Forests, dated April 22nd, 1922.



Base Line, Thunder Bay District.

I left Sault Ste. Marie by boat, on May 17th, with an assistant, two chainmen and four Indians, and was joined at Fort William by four Indians from Chapleau. We took the C. N. R. train to Tannin on May 19th. I had arranged to have eight local Indians join me at this point but not one was there. I hired

a Russian and Swede and commenced work on the 22nd May with this small party. A week later I returned to Tannin and endeavoured, without success, to get men in that district, and was forced to telegraph to the Sault for six Indians. These men joined us on the 12th of June.

Our place of beginning was a point in the east boundary of the Grand Trunk Pacific Railway Block No. 7, at a distance of six miles north from the southeast angle of that block. This point was established by running east astronomically from a witness post on a point in Palette Lake and offsetting eleven chains and forty links south. I ran my base line east astronomically on six mile chords from the end of the third mile. The first three miles being considered as the easterly half of a chord passing through the 96 mile post on O.L.S. Niven's meridian. I intersected my meridian of 1921 at 32 miles 46 chains 16 links on the base line. I continued my base line east astronomically 41 miles 64 chains 16 links, to the west boundary of the Nepigon Forest Reserve, run by Phillips & Benner in 1920. My posting from the west to east ran, respectively, zero to 32 miles 46 chains 16 links, 0 to 24 miles, 0 to 17 miles 64 chains 16 links, in accordance with the marked plan accompanying my instructions. From the point 24 miles east of my meridian of 1920, I ran north astronomically 37 miles 43 chains and 26 links to the Canadian Government Railway and arrived back in Sault Ste. Marie on the 5th of August.

A bush fire from the southwest was burning the territory traversed by the first eighteen miles of my base line during the progress of the work, and had it not been for the proximity of large lakes all along this section, it would have been much too dangerous to carry on. Heavy rains extinguished the fire at the time when it threatened to block me completely.

The party consisted of twenty-one in all, made up as follows:—

- 1 Surveyor.
- 1 Assistant,
- 2 Chainmen,
- 1 Cook,
- 1 Cookee,
- 5 Axemen,
- 5 Packers on line,
- 4 Packers with freighting canoes,
- 1 Geologist attached to party.

This distribution was maintained throughout the whole course of the survey except for the last twenty-five miles of the meridian, when I put on two extra choppers and sent two men out to the railway with the canoe.

SOIL.

There are no areas in the country traversed by these lines suitable for agriculture. The covering is ninety-five per cent. gravel and boulders and five per cent. solid rock.

MINERALS.

I found no trace of valuable minerals. The formation along the base line and the southerly twenty miles of the meridian is Laurentian, and the northerly seventeen miles of the meridian is Kewatin and schists.

TIMBER.

From our starting point to the 25th mile of our base line a bush fire was raging through the second growth timber of this area. This fire was reported to have started somewhere in the neighbourhood of the C. P. R. west of Fort William and travelled through to the Canadian Government Railways east of Allenwater. Heavy rains extinguished it about the 12th June. The timber in this section is of no great commercial value, at present being about fifteen years old. From the 25th mile on my base line to the western boundary of the Nepigon Forest Reserve and through the southerly twenty-five miles of my meridian there is a uniformly good stand of spruce, poplar, birch and banksian pine, ranging from four inches to sixteen inches in diameter. The northerly twelve miles of my meridian runs through mixed second growth small timber.

WATER POWERS.

The Gull River is the only waterway which presents any possibilities in the way of commercial water power. There is a falls on the river about twenty miles north of my base line, with a drop of one hundred feet in a quarter of a mile. The flow in this river in July, 1922, was about three hundred and fifty cubic feet per second. The drainage area is approximately 1,000 square miles and storage possibilities are excellent.

GAME.

Moose are plentiful over this entire area. There are also red deer and caribou. All fur-bearing animals seem to be plentiful, more particularly beaver and martin. There are a great number of partridge.

FISH.

Pickerel, pike, whitefish, perch and suckers are to be found in abundance in all lakes.

This is my report.

I have the honour to be, Sir,

Your obedient servant,

K. G. Ross,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

*Appendix No. 30.*CERTAIN LINES IN THE UNSURVEYED TOWNSHIPS OF MACBETH, AFTON, ARMAGH,
CLARY AND SHEPPARD.

SUDBURY, ONT., September 11th, 1922.

SIR,—In accordance with your instructions dated April 12th, 1922, to survey certain lines in the unsurveyed Townships of MacBeth, Afton, Armagh, Clary and Sheppard, this we have done and respectfully submit the following:—

We left Sudbury on May 4th, 1922, and arrived at Washagaming Lake same day; next day we proceeded up Washagaming and Maskinonge Lake, and thence by portage to Sturgeon River to the south limit of the Township of MacBeth.

The country in general is extremely rough and rocky, the soil on the whole is sand and gravel; we found a few places suitable for agriculture.

The timber in the Townships of MacBeth, Afton and Armagh is composed chiefly of large white and red pine and the stand is very heavy.

The timber in the Township of Clary is mostly jack pine with light stands of red and white pine.

In the Township of Sheppard, on the south half the pine is young and vigorous, while on the north part the pine is large and over-matured, with patches of jack pine. The spruce within a radius of about two miles from the Sturgeon River has been cut many years ago.

As to the minerals, we saw no economic minerals, excepting in the Township of Afton. We ran across the Golden Rose properties, the formation here is an "iron formation."

The only water powers encountered were on the Sturgeon River, Upper and Lower Goose Falls, which may each develop about 700 h.p.

Your obedient servants,

MOONEY & GILL,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 31.

BOUNDARY LINE BETWEEN ONTARIO AND QUEBEC.

TORONTO, November 13th, 1922.

SIR,—On receipt of your instructions No. 2610, dated April 5th, 1922, to renew the line of boundary between the Provinces of Ontario and Quebec, from Point Beaudette on Lake St. Francis to Pointe Fortune on the Ottawa River, I got in communication with Mr. Paul E. Mercier, of Montreal, who was appointed by the Province of Quebec, to work with me in the interests of that province, and we went on the ground and commenced work on May 8th and finished the field work on June 24th, and I beg to submit the following report.

We commenced at Lake St. Francis and worked northerly and with the aid of copies of Fletcher's plan and a copy of his field notes furnished Mr. Mercier we had no difficulty in following the line and finding all the monuments Fletcher planted in 1860, except three. We found that Fletcher had divided the line into three parts, which he called *Novelle Longueuil*, *Newton* and *Rigaud*, and gave separate chainages for each part, and we followed the same plan so as to be able, if necessary, to locate missing monuments or other features the more easily from his chainage. We found that he had marked the divisions between these parts or sections as well as each end of the line by a larger monument than generally used along the line, they being 9" x 13" dressed 27" at top. The league or mile monuments were 6" x 9" dressed 24" and the deflection or angle monuments were triangular about eight inches on each side dressed 24", all cut stones and set about three or four feet in the ground. A detailed description of each monument is given later.



Monument No. 38A
Ontario-Quebec Boundary.

We found the country through which the line runs generally cleared and cultivated, there being only a few patches of bush, mostly second growth, and that the line was mostly fenced, generally barbed wire, or had a ditch on it in accordance with French practice.

We ran the line through from the south to north, chaining and taking notes as we went, all being shown in the foregoing field notes.

The deflection monument at chainage 674+30 from Lake St. Francis No. 19, being in Concession VII Lancaster Township, was found lying on the side of a ditch in a field used for pasturage this season, we decided to move it to the southerly side of the Canadian Pacific Railway right of way, main line from Smith's Falls to Montreal, a distance of 5.93 chains, and so be out of the way for cultivation of the field, and not be liable to damage or destruction. By doing this we moved the actual line where the monument is built into Ontario less than

seven links, but as the boundary line is not a property line at this place, we felt the change was of no consequence. Again at the south branch of the La Grassie River, the deflection monument, No. 34, being in Concession VI West Hawkesbury Township, at about chainage 221 on the third or Rigaud section, had been on the north bank of the river where a considerable slide had recently taken place, was found lying on the southerly bank of the river, we carried it up on the north bank and set it on the forward line about 1.75 chains from the top of the bank, and made it a deflection point, then we went back to monument No. 33, at chainage 206+78 and made that a deflection point also, with a very small angle, this made no appreciable difference to the line except that there is one more angle in it than Fletcher had.

Two monuments Nos. 42 and 44 could not be found. We were not able to find any person who had seen them that could find them again, nor could we find them from chainage, but built new ones at places so located.



Monument No. 2
Ontario-Quebec Boundary.

At Pointe Fortune we found buildings on the line as shown on the enlargement on the plan.

On the return we check chained with a 200 foot chain, by different men, my assistant and I doing it, straightened up, moved and mounded up the stone monuments and built new concrete monuments at points shown. The check chainage showed a difference of 2.4 feet in 53,447 feet in the north or Rigaud section and a slightly greater difference in the other two sections. Four stone monuments, which had the tops broken off and were in cultivated fields, were not touched, as they would be in the way for cultivation.

At certain places as shown on the plan and field notes, new concrete monuments were built, these being a two feet square shaft about four feet long and being pyramided to eight inches at top in a height of two feet, as shown on detail attached. Generally a two-foot hole was dug in the ground as deep as re-

quired, where boulders did not interfere, then filled with concrete, using "plums"; small boulders were available, and carried up eight or nine inches above ground with a form and then the pyramidal top built on, after the form was removed this was mounded up to within eighteen inches of the top. Eight pairs of brass plates were supplied having "Ontario" and "Quebec" on them, these were set in the forms with the bolts supplied and built in the concrete. Five monuments each having a pair of plates were built, one at each of the five railways crossed, and the others at the three principal roads crossed. The plates had a space number on them, but no numbers were put on for the reason that they were sandwiched in among the stone monuments and we could not see how we could put numbers on them only and have the line symmetrical; consequently we did not put any numbers on at all, but they can be numbered at any time if it is considered advisable to do so.

No blazing of trees was done, because there were very few trees close enough to the line to be within the regulation distance, the exception being shade trees in fences.

The following is a list of the several monuments found and as left together with the new concrete monuments built, the numbers being the same as numbers in report of Messrs. Hutcheon and Mills in September, 1921, with the letters A and B added for new ones built or ones omitted in said report.

(List of monuments follow.)

Underneath is a drawing of the concrete monuments that were built, in places as described, all being the same size and built with the same forms.

All of which is respectfully submitted,

Your obedient servants,

E. T. WILKIE,
Ontario Land Surveyor.

PAUL E. MERCIER,
Quebec Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 32.

OUTLINES OF TOWNSHIPS, DISTRICT OF TIMISKAMING.

TORONTO, ONT., October 18th, 1922.

SIR,—We have the honour to submit the following report of the survey of certain township outlines in the District of Timiskaming, lying along and adjacent to the Abitibi and Mattagami Rivers, north of the Canadian Government Railways. This work was done under instructions from your Department dated April 12th, 1922.

Upon receipt of the instructions we proceeded with the purchase of supplies and the organization of the necessary party. On the 15th June the party

assembled at Clute, twelve miles northwest of Cochrane, and that afternoon reached, by a wagon road recently opened, the foot of the rapids on the Frederick House River. This point is about a mile north of the south boundary of the Township of Leitch.

A descent of ten miles down the Frederick House River brought us to its junction with the Abitibi River. We found the line between the Townships of Colquhoun and Leitch without difficulty and about thirty chains north of the Abitibi River located the iron and wooden posts planted to mark the northwest corner of the Township of Leitch, at which point the season's work commenced.

From this corner of the Township of Leitch we ran a meridian north eighteen miles and fifty-two links, to O.L.S. Niven's base line in 1899, which we intersected six chains and thirty-three and a half links east of his nine mile post.

From the nine mile post on our meridian we ran eastward eight miles, seventy-six chains and thirty-six links to the meridian run in 1898 by O.L.S. Niven, and from the same post we ran westward across the Abitibi River. Meanwhile a sub-party ascended Driftwood Creek to the north boundary of the Township of Colquhoun, and travelling westward along that boundary, reached the northeast angle of the Township of Kendry. There they commenced a second meridian which was also carried north to O.L.S. Niven's base line of 1899. Our base line run westward across the Abitibi River, intersected this meridian at eight miles seventy-nine chains and thirty-nine links north of the Township of Kendry. The base line was then carried westward to intersect a third meridian which we ran north from the northeast angle of the part of the Township of Alexandra lying south of O.L.S. Speight's base line of 1905. This meridian was run north to O.L.S. Niven's base line. Our base line was then carried westward to the west boundary of the Township of Beardmore, intersecting that boundary at one chain and fifty-seven links north of the southeast corner of the township.

The remainder of the work lay north of O.L.S. Niven's base line and commenced at the northeast angle of the Township of Beardmore. This point was reached from the Poplar Rapids River by means of a canoe route, leaving that river about a mile above its mouth. From the township corner we ran north slightly more than eighteen miles, to the base line run last year by O.L.S. Sutcliffe and Neelands. We picked up the line for the north boundary of the Township of Tucker, run by ourselves in 1911, and continued it eastward twenty-six chains and sixty-six links to intersect our meridian, and then continued eastward eight miles, forty-nine chains and seventy links, to a meridian run last year by O.L.S. Sutcliffe and Neelands. This completed the season's work. The party then ascended the Mattagami River and reached rail head at Smooth Rock Falls on 11th August.

All lines were well opened out and carefully blazed. Wooden posts were planted at the end of each mile and iron posts were planted at the end of each third mile and at the township corners, or as witness posts for those points.

On each line carried across more than one township the chainage was recommenced at the intersecting township outlines.

Wooden posts were selected from the most durable material available in the vicinity of the point to be marked, and the posts themselves were firmly planted. We found it impossible in any instance to build a cairn of stones, as we encountered very little rock and none of it was reasonably close to a point where it could be used in this way. Owing to the flat nature of the country and the presence of considerable areas of swamp, a number of the iron posts

had to be planted as witness posts at some distance from the points they were intended to mark. The iron posts were in all cases carefully planted and the trench or pits, dug to reference each, were made of full width and depth. Except in a few instances where suitable trees were not available, each mile post and witness post was referenced to two bearing trees.

We intersected in several places lines run by O.L.S. Speight in 1905, and noted our chainage to those lines as well as to the distance to his nearest post.

TIMBER.

Fire swept through the country east of the Abitibi River, apparently about twenty years ago, and destroyed about eighty-five per cent. of the timber in the area covered by it. What timber remains is in the swamps or protected by stretches of muskeg. The burnt area seems to include most of the townships of Menapia and Ireland east of the river and the northern part of the Township of Marvin. A second growth of spruce and poplar is now springing up, but is not yet of any considerable size. West of the Abitibi River we found that the timber on the boundary between the Townships of Beniah and Webster was quite young, not more than forty to fifty years old, except in isolated spots. The country had been evidently burnt over probably fifty years ago. The growth, however, seems to be vigorous. The timber encountered on other lines run, south of O.L.S. Niven's base line, was of a good average quality, being, of course, mainly spruce, with some balsam, poplar, balm of gilead and birch, on the higher lands. Much of the land is swampy, but most of it is capable of being drained and cleared. North of O.L.S. Niven's base line the country was inclined to be flat and wet, muskegs were more extensive and the timber, on the whole, smaller.

MINERALS.

Practically no rock was seen during the course of the survey, and none at all on the lines of survey.

SOIL.

The soil is mainly the white clay common to this part of Ontario, with occasional ridges of sandy loam or coarse sand, and the townships south of O.L.S. Niven's base line seem suitable for agricultural development. The large areas of muskeg encountered on the lines north of O.L.S. Niven's base line suggest that these townships are not so largely composed of good agricultural land.

WATER POWERS.

The Abitibi and Mattagami Rivers are both fast flowing streams. Plans are now under way for the development of water power on the Abitibi River at Three Carrying Places Rapids and also at a point lower down. Though there are numerous small rapids on the Mattagami River, within the townships outlined, there is no point within their boundaries suitable for power development on any considerable scale. At Cypress Falls, with a drop of about thirteen feet, just below our last crossing, there is a possible site.

FISH AND GAME.

Moose were comparatively scarce and few signs of them were seen. Beaver, too, were not plentiful. Of the other game and fur-bearing animals, it is diffi-

cult to speak from observation in the summer, though this area is said to be a good martin country. The lakes and smaller streams contained considerable numbers of pike and pickerel. The Mattagami and Abitibi Rivers apparently are not particularly well supplied with fish.

CANOE ROUTES.

The Abitibi River is for the most part broad and deep through these townships and is at present much travelled in connection with surveys and construction work for the Timiskaming and Northern Ontario extension. From our observation, the Mattagami River is, generally speaking, swifter and shallower than the Abitibi River. From the railway at Smooth Rock Falls to Cypress Rapids there are three short portages. There are, however, numerous flat rapids. The Poplar Rapids River, from our crossing on the north boundary of the Township of Alexandra to its mouth, is readily navigable by canoes, except at extreme low water. Driftwood Creek, which we ascended from its mouth to the north boundary of the Township of Colquhoun, is also easily travelled in normal stages, with one or two short portages.

All the east and west lines were run as chords of the parallels of latitude passing through the corners of the respective townships. Frequent observations were taken on Polaris throughout the survey and the notes of a number of these are embodied in the field notes.

GENERAL FEATURES.

The townships outlined during the summer's work are part of the northern clay belt and conform in general to the characteristics associated with that area. The surface is for the most part flat, or gently undulating, except in the immediate neighbourhood of the rivers and larger creeks, where it is broken by the ravines cut by these streams. These ravines and the river valleys are seldom wide, the banks as a rule rising almost to the level of the interior country within a few chains of the water. The Abitibi and Mattagami Rivers drain the area surveyed. Tributary to these rivers are the Driftwood and Red Sucker Creeks and the Poplar Rapids River. The latter empties into the Mattagami River at O. L. S. Niven's base line, where there is a small clearing and some buildings have been erected by John Shabatese, an Indian Chief. The Driftwood and Red Sucker Creeks flow into the Abitibi River.

No large lakes were seen. The lakes crossed by our lines were shallow and the shores were, in most cases, swampy.

We have the honour to be, Sir,

Your obedient servants,

SPEIGHT & VAN NOSTRAND,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 33.

RESURVEY OF SEVERN RIVER AND LAKE EXPANSIONS.

PARRY SOUND, ONT., October 21st, 1922.

I have the honour to report that in compliance with instructions dated April 27th, 1922, I proceeded to make a resurvey of the Severn River and lake expansions, from the south boundary of the Township of Matchedash, the head of Sparrow Lake, down stream to the Government dam at Port Severn.

I left Parry Sound on May 31st with three men and assistant, by way of the Canadian National Railways, arriving at Sparrow Lake the same evening where we were joined by another rodman. Loading our canoes, we proceeded down Sparrow Lake about four miles to the scene of our operations, where we pitched camp. The following day, after making the usual tests of our instruments, I commenced the traverse of Sparrow Lake at the south boundary of Matchedash Township.

Severn River and its lake expansions form the boundary between the Township of Muskoka and the County of Simcoe as it wends its way to Port Severn on the Georgian Bay, and has been greatly improved as a water route by the construction of the Trent Canal. Sparrow Lake, owing to its location on the Canadian National Railway, lies in easy access of approach by those who love the great outdoors. The shores are mostly rocky, but not exceedingly high, thus permitting of better building sites. Numerous large hotels have been erected along the shores of this lake, and appear to be doing a lucrative business.

Wending our way down the river, we came to the dam, about two miles below the Canadian National Railway crossing. A large power plant has been erected below this dam, supplying the town of Orillia with light and power. Before we reach Gloucester Pool on our way to the Georgian Bay, we come to the Big Chute, where another large dam has been erected. A power plant has also been erected here, supplying a great deal of light and power to different towns. Besides the dam at Port Severn, at the Severn River entrance to the Georgian Bay, there are several concrete and earth dams blocking the different by-passes from the river. The shores all along the river are generally rocky, with occasionally a level stretch of land. At several places near Ragged Rapids, the banks are high and precipitous. Owing to the dam construction and the height the water has been raised, several of the older islands have been partially submerged, and a great deal of the mainland flooded, causing many new islands. These islands range in size from a mere rock to thirty or forty acres. Apparently, in some places the timber was felled before the land was flooded, as all trace of the original shore is obliterated, while in many of the bays the dead timber still stands, thus making it very difficult for traversing the shores.

TIMBER.

As these townships have been timbered over many years ago, very little of the original forest remains. Fire has also done its deadly work, leaving in its wake the charred remains.

Clinging by their roots to the shallow soil among the rocks, scrub oak four inches to twelve inches, pine six inches to thirteen inches, and scattered small poplar, birch, maple and hemlock have sprung up, while in the low land there is scattered, ash, elm and cedar. No timber in quantities large enough for commercial purposes to any extent was met with, although if the timber was protected for a few years, the pine would grow.

SOIL.

The country around the Severn waters in this locality is mostly high and rocky, thus making farming out of the question. However, a few settlers have braved the hardships of pioneer life, following the pursuit of farming, both in the Townships of Morrison in the district of Muskoka, and Matchedash, in the County of Simcoe. When land exists, the soil is a clay loam, sandy in places. Not much farm land was met with until we reached Gloucester Pool. Several settlers in the Township of Baxter, on the west shore of Gloucester Pool, appeared to be making a good living. Some had settled along Go-Home Bay, White's Bay and up near Six-Mile Lake. Excepting the land occupied by these sparsely-settled agriculturists, a considerable portion of the remainder lying along the water front is in the hands of the tourists.

MINERALS.

As the rock here is granite of the Huronic era, no minerals at all were seen. There were a few small outcrops of feldspar, but not of any commercial value.

FISH AND GAME.

No deer or bear were seen at all. A few otter, beaver and mink were seen, and scattered broods of partridge were met with. While no doubt the grassy, weedy bottom of Sparrow Lake has been for years the mecca for maskinonge, they appear to be getting scarcer. Several fine specimens of the pike and small-mouth black bass were caught, but generally speaking the fishing was only fair.

In reference to the water powers, it will be unnecessary for me to dwell upon them in detail, as they have been all developed to a great extent, and any information can be obtained much more accurately.

While the townships through which our work extended have been surveyed many years ago, most of the different monuments were found. Many of the different concession lines in Matchedash and Baxter have been resurveyed under instructions from the Crown, and in the Townships of Morrison and Wood the old monuments have been perpetuated through the local surveys.

In reference to the tourist sites, the same does not hold. True it is, in a few cases, posts were planted on the ground, but in the majority of cases no posts were planted. I have shown on the plans all posts, or nearly so, that were found planted.

Owing to the presence of the dams on this river, it covers a wider area than formerly. Our plan of traverse will show this, and the different matters that I have mentioned in detail.

I am enclosing with the report, observations, descriptions of islands met with and area of same, along with the bearing of the courses, and distances from station to station.

All of which is respectfully submitted.

I have the honour to be, Sir,
Your obedient servant,

JAS. T. COLTHAM,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 34.

BASE AND MERIDIAN LINES AND ISLANDS IN THE EAST END OF ST. JOSEPH LAKE, DISTRICT OF THUNDER BAY.

THESSALON, ONT., March 29th, 1922.

SIR,—In accordance with your instructions dated April 15th, 1921, I have made a survey of certain base and meridian lines in the Districts of Patricia and Thunder Bay, and have made a traverse of the eastern part of the Lake St. Joseph and beg to submit the following report:—

The base line was started from the 66th mile post on the meridian line run by myself in 1919, was run east astronomically on a series of six-mile chords of a parallel of latitudes for a distance of twenty-eight miles and twenty-nine chains. At this point it was intersected by a production of the westerly boundary of the Indian Reserve on the south side of Lake St. Joseph, near the Hudson's Bay Company's post at Osnaburgh. The west boundary of this Indian Reserve was produced south a distance of seventy-three chains, sixty-four links.

From the end of each six-mile chord, a meridian line was run north astronomically to the shore of Lake St. Joseph.

The base and meridian lines were well cut out and blazed. A substantial wooden post of the best timber available was placed at the end of each mile, excepting where this point occurred in a lake or stream, and was surrounded wherever possible by a substantial mound of stones. Bearing trees were marked with the letters "B. T." after being blazed in a prominent manner, at every post where possible and the distances and bearings of these trees from the various posts, were recorded in the field notes.

The number of the mile was marked with a scribing iron on the side of the post facing the point from which the line was started. When the end of a mile came in a lake or stream, the post was planted on the nearest shore, and the chainage from the nearest mile was marked on the post with a scribing iron.

At the end of every third mile, wherever possible, a standard iron post of the type recently adopted by your department was planted. At these iron posts two pits were dug, and the earth from the pits was formed into two square pyramidal mounds, in the manner described in the general instructions relating thereto. In some cases it was impossible to plant an iron post and dig the pits and erect mounds, on account of the end of the mile coming in water or on unsuitable ground. In each of such cases, a standard iron post surrounded by a witness trench and accompanied by a conical mound was planted at the nearest even chain where suitable ground could be found, from the correct position of the point to be established.

These witness posts, trenches and mounds were placed at the following points:—

At 14 M.	76.00 chains	to indicate the 15th mile.
" 17 M.	73.00	" " 18th mile.
" 21 M.	8.00	" " 21st mile.
" 26 M.	62.00	" " 27th mile.

On the third meridian no iron post was planted at the third mile, on account of the ground being unsuitable, but a witness post was planted at 3 M., 60.00 chains, near the shore of Lake St. Joseph.

Astronomic observations were taken whenever possible to determine the bearings of the lines run, and the results of these observations are recorded in the field notes on the proper pages.

The traverse of the eastern part of lake St. Joseph was started at a point on the south side of the narrows on Lake St. Joseph, 59.00 chains north of the sixty-first mile post on the meridian line run by myself in 1919. This is the same point from which I started the traverse of the western part of Lake St. Joseph surveyed in 1920, only this year the traverse was made towards the east.

The whole of the south side of Lake St. Joseph lying east of this meridian was traversed as far east as a point about six miles in a direct line east from the meridian of 1919. The traverse of the north shore was also conducted westerly from the east end of the lake, to a point about two miles west of where it would be intersected by a northerly production of the third meridian. This leaves an unfinished portion on the north shore of the lake, about ten and a half miles across in a direct line. This unfinished portion includes a large bay with numerous islands, some of them quite large. It was not possible to traverse this portion of the lake owing to lack of time. The prevailing rock formation in this section appears to be Laurentian and the opportunities for successful prospecting do not appear to be so great as in other sections, so it was decided that it was more important to complete the traverse of the other portions of the lake.

The traverse was tied to the base line wherever possible and to each of the meridian lines run north from the base line. It was continued on the south side of the lake as far east as the Indian Reserve south of Osnaburgh. On the north side of the lake at the eastern end, the traverse was carried sufficiently far to tie in the Hudson's Bay Co.'s property at Osnaburgh, and also the Indian Reserve north of this point. At the east end of Lake St. Joseph the only portion not traversed is the large island between the northerly and the southerly outlets of the lake, and a number of small islands adjacent to this large island and to the northerly Indian Reserve.

In the traverse all angles were measured with a transit, and the distances were obtained by stadia or micrometer. The bearings of the traverse courses were checked by astronomical observations at frequent intervals and also by ties to the base and meridian lines.

Every night the traverse work of the day was plotted on cross section paper to a scale of twenty chains to an inch. By this means any error in the traverse was at once located and corrected. The closing errors in the traverse were never more than twenty-five links to the mile, and were usually much less than that.

As in the previous season, at intervals of about a mile on the shore, prominent trees were placed on four sides, and marked on the side next the water with the letter "P," followed by the number of the tree, thus, P. No. —. Similarly the islands were marked by having the letter "I" following by the number of the island. In cases where no suitable tree was available, a substantial post was planted in a mound of stones and marked as indicated above. These trees and posts were all tied to the nearest transit station, and the bearing and distance to the tree or post from the transit station recorded in the field notes.

The details on the traverse showing all measurements, all posts and trees marked as monuments, and all information necessary for the proper interpretation of plans, have been plotted on a scale of ten chains to an inch, and tracings of these detail sheets have already been sent to your department. A plan on a scale of one mile to an inch has also been prepared on mounted drawing paper. This plan shows the base and meridian lines and their relations to the sur-

rounding country. The shore line of Lake St. Joseph and of all the islands within the limits of the survey have been reduced by a pantograph, and plotted on this plan, which accompanies this report.

The country as a whole is rolling and rocky, the valleys being filled with the muskegs typical of this section of Northern Ontario. There is very little agricultural land, and what there is occurs for the most part in small isolated tracts. There are several fairly large areas of gravelly and stony land, particularly near Lake St. Joseph, from the commencement of the base line up to about the fourth mile, and again near the twenty-third and twenty-fourth miles on the base line and on the fourth meridian. There is a fairly large area of sandy land near the Hudson's Bay Co.'s Post at Osnaburgh, and some sections of this are capable of being successfully cultivated. There is a good garden at Osnaburgh, and potatoes and other vegetables appeared to grow very well. Some of the Indians have small gardens scattered about on some of the islands, but they do not appear to grow anything but potatoes. The potato patches were usually very well cultivated and gave evidence of considerable care and attention. On the whole, however, the amount of land suitable for cultivation is relatively very small.

The prevailing timber is spruce, white birch, jack pine and balsam, with considerable scrubby cedar close to the shores. No red or white pine was seen.

Forest fires have wrought great destruction throughout the greater part of this territory. A very great portion of the country adjacent to the south shore of Lake St. Joseph has been burnt over only a very few years ago, and extensive areas are now covered with masses of fallen timber, which make travelling very difficult. On the areas which have been burnt for some time, a healthy second-growth of jack pine, spruce, white birch, etc., is growing very nicely, and if fires are kept out in the future, will eventually form a considerable addition to the forest wealth of this country.

Between the fourteenth and fifteenth miles on the base line, there is a striking example of what the timber resources of this country might have been had the fires been prevented. For a distance of about half a mile along the base line in this locality there is an area which has apparently never been touched by fire, and there is a stand of splendid spruce, balsam and white birch of large size. This is the largest and best timber seen during the season. Another splendid example of what is apparently original forest is found on a large island in Pashkokogan Lake, near the twenty-eighth mile on the base line.

There is a considerable quantity of good spruce, etc., scattered throughout the country, as there are still large areas which have escaped the many fires. It is difficult to estimate the proportion of the total area that has been burnt over, but I would venture to say that in the neighbourhood of fifty per cent. of the country seen from the lines, and from the south shore of Lake St. Joseph, has been burnt over within comparatively recent years. Notwithstanding the great destruction that has been caused by fire, however, there is still a great quantity of timber suitable for pulpwood, which will some day be a very valuable asset to the Province. It is not impossible that the timber resources of this territory are greater than one would at first be led to believe. The desolation caused by a forest fire stands out so prominently on the landscape, that there may well be a tendency to estimate the damage done by it as being greater than it really is.

Most of these fires are caused by carelessness on the part of the local Indians, and I would suggest that some effort be made to impress on the Indians the necessity for care in the use of fire. If arrangements were made to have

the Hudson's Bay Co. put up notices where the Indians congregated around the various posts in the summer, it might have some effect. These notices should be printed in the Indian language, using the syllabic characters which all these Indians read and understand. I would also suggest that an effort be made to have the importance of this matter impressed upon the Indians by the Indian Agent who goes into Lake St. Joseph to pay them their treaty money every summer. If the chief of the band of Indians at Osnaburgh were appointed a fire ranger at a very small salary, I firmly believe that a great improvement would result.

The country north of Lake St. Joseph does not appear to have been burned over to nearly the same extent in recent years as that south of the lake, and there is a large amount of pulpwood in this section of the country. North of Lake St. Joseph the country is not so hilly. There are not nearly as many rock exposures and muskeg areas are larger and more frequent.

Regarding the geology of this section of the country, I have very little to say. Dr. E. L. Bruce, professor of mineralogy at Queen's University, spent the summer with several assistants making a geological survey of the country adjacent to Lake St. Joseph, and his report, which will be made in the Department of Mines, will give complete information as to the geology of this whole region.

I would merely say in this connection that on the south side of Lake St. Joseph there are several large Keewatin areas which would appear to be well worth prospecting. From a point about three miles east of the second meridian, and extending as far east as the Indian Reserve south of Osnaburgh, there is a very large area where local magnetic attraction is most pronounced. In many places along the shore there are indications of iron ore. Along the third meridian, particularly near the second mile, local attraction is very strong, and this condition extends for a long distance both east and west of this line. Unfortunately the portions of this territory that I was able to see, are covered with a heavy growth of deep moss with muskeg in places, and there is very little rock exposed. All the indications point to the continuation easterly of the iron range which exists in the westerly portion of Lake St. Joseph and which was mentioned in the report of the survey of that portion of the lake in 1920.

Lake St. Joseph is the predominating feature of the topography of this section of the country. The shore line of this lake is very irregular, with many deep bays and long points. There are numerous islands, ranging in size from bare rocks to some of several hundred acres in extent. The largest island, No. 606, has an area of 1,827 acres. The first island surveyed was numbered 472, the numbers being continued from the previous year, and the last one, near Osnaburgh, was numbered 925. A detailed description of each of these islands is given separately. The data given regarding the islands gives the number of the island, the area, the nearest transit station, and the number of the detail sheet on which the details of the survey of the island are shown.

The shores of Lake St. Joseph are generally rocky and stony, but many of the bays run back into fairly extensive marshes where the exact location of the shore line is hard to determine with any degree of certainty. A peculiar feature of the portion of Lake St. Joseph surveyed this season, is the large number of stretches of almost straight shore, the shore consisting entirely of boulders and the land behind being composed of boulders and gravel. This was particularly noticeable for a few miles east and west of the third meridian and on some of the large islands north of this section.

There are very few streams of any size flowing into Lake St. Joseph from

the south. The largest stream enters the lake in a deep bay east of the fifty-ninth mile on the meridian line run by myself in 1919. This bay joins the main lake about four miles east of the sixty-fourth mile on the meridian of 1919. This is a fairly large stream and drains an exceedingly intricate system of lakes with shore river stretches between. These lakes extend south to about the twenty-fifth mile on the meridian of 1919 and forms part of a very good canoe route to the Canadian Government Railway near Fowler Station. This canoe route is shown on the plan which accompanied the report of the survey of the meridian run by myself in 1919.

Another stream enters Lake St. Joseph near the twenty-third mile on the base line run this season, and drains a number of small lakes lying to the south. This stream is not very large, but forms part of a canoe route by which access is obtained to a considerable area to the south.

There are a couple of streams entering Lake St. Joseph on the north side which are navigable for canoes, but not for any great distance, as the divide between the waters flowing towards Lake St. Joseph and those tributary to the Attawapiskat River is not far from Lake St. Joseph. A route which was used by myself for transporting supplies to the meridian run in 1919, enters the deep bay on the north shore, which it was not possible to traverse this year. A sketch of this route, by which one can travel by canoe from Lake St. Joseph to Cat Lake, is also shown on the plan of the meridian run by myself in 1919.

Fish and game of the varieties common to this country are fairly plentiful.

Accompanying this report is a mounted plan on a scale of one mile to an inch, as previously mentioned; also my accounts in triplicate, which I trust that you will find satisfactory. The field notes of the lines run, and the tracings showing the details of the traverse, were forwarded to your department some time ago.

I have the honour to be, Sir,

Your obedient servant,

JAMES S. DOBIE,

Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 35.

SURVEY TOWNSHIP OUTLINES, DISTRICT OF ALGOMA.

PEMBROKE, ONT., January 28th, 1922.

SIR,—I have the honour to submit the following report of the survey of the township outlines in the District of Algoma, made by me under instructions from your Department, dated April 15th, 1921.

I proceeded from Pembroke via Canadian Pacific Railway to Franz, and then up Algoma Central Railway to Tatnall Station, thence via canoes from

Oba Lake up small stream, the outlet of Cat Lake, from which there is a chain of lakes and portages to lake near the northeast corner of Moorhouse Township, which was my starting point. Here I planted new jack pine post alongside the old iron post and from this corner ran the line between Townships of Moorhouse and Makawa south astronomically a distance of nine miles and established the corner of Mildred, Makawa, Nebotik and Hook Townships. From this corner I ran north between Townships of Hook and Mildred to intersection with south boundary of Legge Township, I then cut a trail to southwest corner of Irving Township, where I found an old line which I retraced thirty-three chains and ninety-eight links easterly to old wooden and iron posts marked Mildred on the southeast, and Martin on the southwest. I produced this line easterly to intersection with my meridian between Mildred and Hook Townships. I then returned to my base line and ran south between Makawa and Nebotik Townships a distance of nine miles. I again returned to my base line and ran easterly to intersection with southerly production of boundary of Hayward. From southeast boundary of Hayward I ran south astronomically a distance of fourteen miles, seventy-seven chains and seventy-nine links to intersection with Niven's base line.

To run between Farquhar and Alderson Townships I proceeded to MacDuff Station on the Canadian Northern Railway, which is only a short distance east of three mile post on Patten's base line, my starting point, from which I ran north astronomically, a distance of nine miles, six chains and fifty-eight links to intersection with line run east astronomically from southeast corner of Dowsley Township.

Returning to the railway, I went east to Minnipuka Lake and proceeded to the northeast corner of Legge Township along north boundary of that township, and from this corner I ran eight miles, seventy-six chains and twenty-two links east astronomically to intersection with Speight's meridian at a point two chains and seven links north of his thirty-third mile post. I then returned to northeast corner of Legge Township and ran north between Minnipuka and Byng Townships a distance of eight miles, seventy-seven chains and seventy-two links, intersecting south boundary of Doherty Township at a point five chains and thirty-two links east of its southwest corner, from which I ran west astronomically between Minnipuka and Pelletier Townships a distance of eight miles, sixty-nine chains and twenty-eight links, to intersection with east boundary of Township of Walls, at a point three chains and fifty-nine links south of its northeast corner; then starting at northeast corner of Walls Township, I ran north astronomically a distance of eight miles, seventy-eight chains and fifty-eight links, intersecting south boundary of Schofield Township at a point nine chains and eighty-five links east of post between lots twenty-five and twenty-six, concession one.

East and west lines are run on chords of latitudes and meridians were run north or south astronomically, frequent observations for azimuth were taken. Wooden posts properly marked were planted at every mile, and iron posts alongside wooden posts at every third mile, and pits dug and mounds constructed where required so to do in accordance with instructions.

SOIL.

I did not see any land suitable for agricultural purposes in sufficient areas to warrant the belief that it could be developed in to farm lands. The best soil is along Fire River, in the Township of Makawa, Mildred and Hook, where there is some clay loam, but not of sufficient quantity for agricultural purposes.

TIMBER.

There is considerable brule in the Townships of Makawa, Moorhouse and Martin, the only timber large enough and suitable for commercial purposes being some jack pine on the line between Townships of Moorhouse and Makawa between the first and third mile posts. There is also some spruce and jack pine along the line between Makawa and Mildred, tributary to Fire River, which does not appear to extend easterly on line between Nebotik and Woolrich beyond second mile post, and along line between Mildred and Hook Townships there is fairly heavy timber consisting principally of spruce, jack pine, poplar and balsam, from six to twenty inches in diameter, and on line between Mildred and Marjorie timber is also fairly heavy, mostly spruce, poplar, balm of gilead, from six to twenty inches in diameter. Along east boundary of Nebotik and Abigo Townships the country is heavily timbered with spruce, poplar, balsam, jack pine and balm of gilead up to twenty inches in diameter, this latter is all tributary to the Greenhill River along which lumbering operations are being carried on, principally in taking out ties for railroad purposes.

On the line between Farquhar and Alderson I did not encounter any burned country, but this timber is small, consisting principally of spruce from four to eight inches in diameter, with scattered areas of jack pine up to ten inches in diameter on the higher ground.

On that portion of my contract lying north and northeast of Lake Minnipuka, the lines between the Townships of Byng and Puskuta, between Minnipuka and Byng, and between Minnipuka and Pelletier, is all green country covered with a dense growth of spruce, balsam, poplar and birch, four to ten inches, with occasionally some jack pine four to eight inches on the ridges, and appears to have been all burned over about eighty years ago, and will have some valuable timber possibilities providing fire is kept out of it. The line between Roche and Pelletier is practically all through brule, apparently burned over about forty years ago, with areas more recently burned over, and the country is quite open in places. This brule extends to the southwest and northeast from about twenty chains south of the first mile post.

MINERALS.

No indication of economic minerals were found, there being rocky ridges scattered generally throughout whole area covered by this survey. The highest and most prominent rock outcrop being between chainage fifty and seventy on the fourth mile of the south boundary of Byng Township. From top of the ridge one can see a great distance in all directions, Brunswick Lake being seen to the east.

STREAMS AND LAKES.

The main branch of Fire River is navigable by canoe through northeast corner of Makawa Township, but through southeast part of Mildred it is very crooked and blocked by logs and brushwood and with very little water flowing in it this summer. From Mildred east there are numerous shallow rapids. Report on Greenhill River has already been made to your department, it having been surveyed in 1920.

Goat River is a fair-sized stream, from a chain to two chains in width and is navigable by canoes through Township of Minnipuka, that being only portion I am acquainted with, it flows through a lake from ten to thirty chains wide and about two and a half miles long, located about two miles north of Minnipuka Lake.

There are no water powers capable of development that I know of.

GAME, ETC.

Large game is very scarce. The fishing in lakes was only fair, but we did not have many opportunities of investigating. I understood from the Indians there is good speckled trout fishing in lake on Goat River, and we took some fine specimens of from ten to fifteen inches long in the river at its crossing of north boundary of Minnipuka Township, also in the creek which crosses same boundary on the fourth mile.

Speaking generally, the area covered by survey this season is valuable only for its timber possibilities, which depend on the success in keeping down forest fires.

Accompanying this report are a plan, field notes, timber plan, with usual affidavits and account in triplicate.

I have the honour to be, Sir,

Your obedient servant,

HERBERT J. BEATTY,

Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 36.

RESURVEY OF PART OF THE TOWNSHIP OF BLOUNT, DISTRICT OF TIMISKAMING.

NORTH BAY, ONT., December 5th, 1922.

SIR,—I have the honour to submit the following report on the survey of part of the Township of Blount, in the District of Timiskaming, performed by me under instructions from your Department, dated September 26th, 1922.

I left North Bay on October 4th with a party of seven men and travelled to Cochrane, remaining over night at Cochrane, and the next morning hired a motor truck which carried men and supplies to where the Timiskaming and Northern Ontario Railway crosses the south boundary of the Township of Blount, where we made camp and commenced work in the afternoon. Survey work was carried on continuously till the completion on November 3rd, arriving at North Bay on November 4th.

The party consisted of eight men, made up as follows: one surveyor, two chainmen, four axemen and one cook.

Observations for azimuth were taken on the centre line of the Timiskaming and Northern Ontario Railway and bearing carried on side lines between every sixth lot to the east and west boundaries of Concessions "A" and "B."

Traverse of the Abitibi River was made by chaining along the north shore and taking stadia readings to the south shore. Also traverses of lakes were made by chaining on the ice along the shore and taking stadia readings to the opposite shore.

Iron posts were marked and planted, and pits and mounds made at the points shown in accordance with the instructions.

The soil is well adapted for agricultural purposes, being clay, and several of the lots have already been settled on and small clearances made.

Fire has run through the district and destroyed the timber on the high land, and the only green timber is in the spruce swamps, except a portion on the east boundary, lots twelve and thirteen, Concession "A," and on the west boundary of lots twenty-eight to thirty-two, Concession "B."

The road along the southerly limit of Concessions "A" and "B" has been opened and graded, also road between original lots eighteen and nineteen from the southerly limit of township northerly as far as the Abitibi River.

Accompanying this report are plan, field notes and accounts, all of which I trust will be found complete and satisfactory.

I have the honour to be, Sir,

Your obedient servant,

G. P. ANGUS,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 37.

TOWNSHIP OUTLINES IN DISTRICT OF SUDBURY.

PETERBOROUGH, ONT., October 23rd, 1922.

SIR,—I beg to report that, agreeably to your instructions dated April 12th, 1922, to survey certain township outlines in the district of Sudbury, I have completed this work and beg to submit herewith my plans, field notes and report, all of which I trust will be found complete and satisfactory.

The survey was commenced at an iron post planted by myself in 1916, to mark the intersection of the line between concessions four and five in the Townships of Hall and Joffre with the line between these townships. After a delay of a few days at this point in getting an astronomical observation, the line between the Townships of Hall and Joffre was produced south to O.L.S. Patten's base line and from the sixth, twelfth, eighteenth and twenty-fourth mile points. Lines were run due west on six-mile chords to O.L.S. Niven's base line. My meridian six miles west of my first meridian was run due south from a point six miles west of the southeast angle of the township of Hall to O.L.S. Patten's base line. Wooden posts made of the most durable wood in the locality, and at least six inches square and three feet high, were planted at the end of every mile, excepting when that point fell in a river or lake, in which case the post was planted on the line at the nearest shore. At the end of every third mile, where possible, the iron posts supplied by your Department were planted and pits and mounds made according to Department instructions. Where it was not possible to plant these posts at the exact points, they were planted according to instructions and witness mounds and trenches made.

On the hills and uplands of the eight townships outlined by me the country is broken and rocky and has been repeatedly overrun by fire, so there is practically no timber now remaining on the uplands, which are covered with small poplar, white birch and banksian pine. In the vicinity of Upper Green Lake there still remains considerable scattered white and red pine of good size and quality.

In the lowlands between the hills are found the usual swampy tracts covered with spruce, dead and decaying tamarac with alder and willow underbrush and considerable windfall; the average size of this timber ranges from two to ten inches in diameter. Probably eighty-five per cent. of these townships is high and rocky, the remaining fifteen per cent. being low and swampy.

I am very sorry to have to report there is absolutely no agricultural land in any of the townships outlined by me, nor does there appear on the surface any indication of the existence of economic minerals. The whole country is traversed by numerous rivers, creeks and lakes, containing considerable very good fish, particularly pike and lake trout. Moose and red deer are also very plentiful in this locality. While the country cannot be called exactly mountainous, it is very rough and broken throughout.

All the survey was carried out under my personal supervision, and at only one or two points did I find it necessary to depart from the instructions with respect to having angles opposite the base over ten degrees in triangulation work.

There is a considerable tourist traffic passes through the townships, this being the chief waterway leading south from the Canadian Pacific Railway to the Mississauga Forest Reserve. Many of these parties were met with during the progress of the survey.

I have the honour to be, Sir,

Your obedient servant,

J. W. FITZGERALD,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 38.

CERTAIN TOWNSHIP OUTLINES IN THE DISTRICT OF SUDBURY.

NORTH BAY, ONT., November 21st, 1922.

SIR,—We beg to report on the survey of certain township outlines in the District of Sudbury, surveyed by us under instructions from your Department dated the 12th day of April, 1922.

We left North Bay on the 14th of June, arriving at Roberts Station on the Canadian Pacific Railway the same day with a small number of our party; the balance of the party, being Indians, were hired at Biscotasing.

We commenced our survey at a post planted by E. Stewart, O.L.S., in 1891 on the north side of the Canadian Pacific Railway, between townships number

12 and Joffre. The original notes for this point show a wooden post and a gas pipe planted, but the gas pipe had disappeared, the wooden post and a cairn of stones remaining, as was the case on the opposite side of the railway and at all other points with one exception, where the original notes showed a wooden post and gas pipe. From this post we ran north astronomically between the Township of Joffre and Township 12, and continued north astronomically between the Township of Carew and the Township of Alcona to the south boundary of the Township of Fingal, which boundary had been run by us in 1920.

Again, starting at a post planted by E. Stewart in 1891 on the northeasterly side of the Canadian Pacific Railway between the Townships of Joffre and Carew, we ran east astronomically between those two townships to our meridian line and continued thence east astronomically between Township Number 12 and Alcona to the southerly production of the west boundary of the Township of Smuts, which boundary had been run by us the previous year. Producing the said west boundary of the Township of Smuts we ran south astronomically between the Township of Biskotasi and Township Number 12 to a point, where we established the southeast angle of Township 12 due east astronomically from the northeast angle of Township Number 10, which we found marked by a wooden post in a stone cairn planted by E. Stewart in 1891. This completed our work on the north side of the Canadian Pacific Railway. We then proceeded to the southwest angle of Township 12, which had also been established by Mr. Stewart in 1891, but as this country had been burned over since 1891, we found it necessary to run a line south astronomically the distance shown on Mr. Stewart's original field notes from the post we had already found between the Township of Joffre and Township Number 12 on the north side of the Canadian Pacific Railway, and after searching nearly half a day we succeeded in finding the original iron post (gas pipe) and the point of the wooden post, though a four or five inch spruce tree had grown exactly on the top of it. From this point we ran south astronomically six miles between Townships 10 and 11, and at this six-mile point we established the adjacent angles of the four Townships 10, 11, Kelso and McPhail. From the same point we ran west astronomically between the Townships of Joffre and Number 11 to the east boundary of the Township of Hall, which was run this summer by O.L.S. Fitzgerald. From the said adjacent angles of the Townships 10, 11, Kelso and McPhail, we ran west astronomically between Township Number 11 and Township of Kelso to the east boundary of the Township of Abney, which was also run this summer by O.L.S. Fitzgerald, east astronomically between Townships Number 10 and McPhail to the west boundary of Township Number 9, run this summer by O.L.S. Gallagher, and south astronomically between Townships of Kelso and McPhail six miles and twenty-seven links, where we established the adjacent angles of the Townships of Kelso, McPhail, Ivy and Earl. From this point we ran west astronomically between the Townships of Kelso and Ivy to the east boundary of the Township of Cortez, which was also run this summer by O.L.S. Fitzgerald, east astronomically between the Townships of McPhail and Earl to the west boundary of Township Number 8, run this summer by O.L.S. Gallagher, and south astronomically between the Townships of Ivy and Earl six miles, where we established the adjacent angles of the four Townships, Ivy, Earl, Durban and Jasper, and from this point we ran west astronomically between the Townships of Ivy and Durban to the east boundary of the Township of Ethel, which was also run this summer by O.L.S. Fitzgerald, east astronomically between the Townships of Earl and Jasper to the west boundary of Township Number 6, which was also run this summer by O.L.S. Gallagher, and south astronomically between the Town-

ships of Durban and Jasper to the north boundary of the Mississauga Forest Reserve run in 1908 by O.L.S. Patten.

A wooden post not less than six inches square and of the most durable wood obtainable was planted at the end of each mile, or where such point came in a lake the post was planted on the nearest shore and the chainage carved thereon. The posts were all set firmly in the ground and around many of them were built cairns of stones. On the side of the post facing the initial point of the line, the number of the mile was marked by carving deeply in the wood with a sharp knife, as 1 M., 2 M., etc. At the township corners and at the three-mile point on the township boundaries an iron post of the standard pattern was planted flush with the surface of the ground, and at each of these the required pits and mounds were made, or in the case of a witness post a circular trench and mound were made. Where an iron post was planted a wooden post was also planted a foot from the iron post, but in all cases the iron post was set at the true point.

Two bearing trees were marked wherever they were available by blazing the tree and carving thereon the letters "B.T." The distance and astronomic bearing from the post to the face of the blaze was noted and shown in our field notes.

The lines were well opened out and the trees adjacent to the lines and on each side thereof were blazed on three sides in the usual manner.

All lakes across which we could not chain in the usual manner were triangulated and the angles of such triangles were invariably read twice or more to insure accuracy and the bases of such triangles measured with great care.

On the north boundary of Township 11, between four and a half and five and a half miles, we encountered considerable difficulty and the morals of our party suffered much, when we ran into about a mile of drowned land so densely wooded with standing and fallen timber that it was impossible to bring a canoe in, yet the water was from four to eight feet deep. We finally succeeded in getting it cut through and chained with the loss of some time.

The measuring was all done with tapes two chains in length, which were carefully tested with a standard of measure before we commenced operations. On sloping ground the clinometer was used to measure the vertical angle and the horizontal distance derived therefrom.

Frequent astronomical observations were taken on Polaris, records of most of which are attached to our field notes. North and south lines were run as true astronomical meridians. East and west lines were run as chords of latitude passing through the township angles. The magnetic readings were taken frequently and found to be nearly constant at seven degrees west of north.

SOIL.

No agricultural land was met with in the whole country traversed by the survey. The soil is composed of sand, generally underlaid with gravel and strewn with boulders. Many rock outcrops occur.

PHYSICAL FEATURES.

The country for the most part is hilly and dotted with innumerable small and large lakes, most of which contain very clear water, particularly so in the south part of the survey. The principal lakes are Ramsay, Biscotasing and Indian Lakes. Ramsay Lake extends through the Townships of Joffre, Number 11, and Kelso, and extends into the northeast angle of Ivy, the northwest angle of Earl and the southwest angle of McPhail. The water of this lake has been

raised several feet by a dam at its outlet into Biscotasing Lake. Owing to this increased height of water there is a great deal of drowned land around its shores. There are several small rivers or creeks coming into this lake, two running north through the Township of Kelso, one running east in the southwest angle of Township 11 and one running southeast in the northwest angle of Township 11.

Biscotasing Lake extends through the Townships of McPhail, Number 10, Number 9 and Biskotasi. This lake in most places has rocky shores and is made up of long bays running in all directions, which makes it difficult to travel on without an accurate map.

Indian Lake is a long narrow lake lying north and south in the Townships of McPhail, Earl and Jasper. It has also rocky shores and many bays.

While the presence of so many lakes made life in the bush more pleasant and were very helpful for transportation purposes, they were usually more of a hindrance than an advantage to running a line.

TIMBER.

The timber in the Townships of Carew, Alcona, Joffre, 12, 10 and 11 and the north part of Kelso and McPhail is of little importance as it is nearly all second growth, having been burned over some twenty or twenty-five years ago, and this area is now grown up with jack pine, poplar, birch, balsam and spruce averaging six to eight inches in diameter. The Townships of Ivy, Earl, Durban and Jasper and the south part of Kelso and McPhail are fairly well timbered with jack pine, spruce, poplar and birch of merchantable size. In this area there is also an occasional red and white pine of good size.

GAME.

The large game is quite plentiful throughout the area covered. Moose, red deer and bears were often seen. Partridge and rabbits were seen in abundance and the small fur-bearing animals were also numerous. The only fish we were able to catch were pike and pickerel and were plentiful in all the lakes of any size.

ROCK.

The rock formation is of granite and feldspar and no evidence of valuable minerals were seen.

Accompanying this report we are forwarding general plan on mounted drawing paper, timber plan on linen, field notes, accounts in triplicate and the usual affidavits, all of which are respectfully submitted, and we sincerely trust the same will meet with your approval.

We have the honour to be, Sir,

Your obedient servants,

MCAUSLAN, ANDERSON & MOORE,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 39.

BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

PORT ARTHUR, November 9th, 1922.

SIR,—Under instructions from your Department dated April 21st, 1922, to survey certain base and meridian lines in the District of Thunder Bay, we beg to report that we have completed the work.

Our party, accompanied by Mr. W. L. Swanson, Geologist for the Department of Mines, left Port Arthur on June 7th for Mack on the Lake Superior branch of the Canadian National Railway. From Mack the route was by way of a chain of small lakes and short portages to Cedar Lake, where O.L.S. Ross's base line was located and followed to the thirty-sixth mile post which was our starting point.

From this point a base line was run twelve miles east, and from this twelve mile point a meridian line was run twelve miles north and produced south eleven miles and sixty-seven chains and ninety-eight links to intersect the second base line run by us in 1921. The base line was then continued for a total distance of forty-two miles and four chains and thirty-nine links to intersect the west limit of the Black Sturgeon Pulp and Timber Limit run by us in 1918. From the twenty-fourth mile post on the base line a meridian was run south eleven miles, sixty-six chains and sixty-three and four-tenths links to intersect the second base line run by us in 1921. This meridian was also run north twelve miles and thence a base line was run east seventeen miles, seventy-nine chains and seventy links to intersect the west limit of the Nepigon Forest Reserve run by us in 1920. The instructions in regard to the details of the performance of the work were followed carefully. Where a closure was obtained the actual chainage checked very closely with the theoretical, showing that the chaining was well done. In one case, viz., at the end of the first base line, the pits and mounds were omitted owing to the ground being composed of boulders for a considerable distance from the corner. The iron post was, however, well planted.

The country passed through was in general well timbered except for a portion approximately between the seventeenth mile and the twenty-sixth mile on the first base line and all of the second meridian south of the first base line. This area in parts has been burnt several times and is bare of trees, while in other parts it is covered with a dense growth of poplar, birch and jack pine. There is good spruce in the swamps in this area, but these do not appear to be of any great extent. Other areas which have been burnt within recent years are, an area extending from the fifteenth mile on the second base line to the end of the line, and for a distance of about one-half a mile on each side of the four mile post on the first base line. The remainder of the country was well covered with timber, the varieties being as shown on the accompanying timber plan. Spruce is the principal species. There is also a good stand of jack pine extending along the second meridian north from about the fourth mile to the end and along the second base line to the burnt area near the fifteenth mile post, although the timber gets smaller as we travel east. There are also a few small stands of jack pine as shown on the plan.

The country along and adjacent to the first twelve miles of the first base line appears to contain a large number of good sized lakes not shown on any map. No effort was made to make a survey of these, any information shown on the plan being approximate and from information given by the freighters.

The land is generally level or rolling, and the soil sandy or rocky or boulders. Near Lac des Isles, on the second meridian south of the first base line, there are high rocky hills and the country is very rough and broken. On the second meridian north of the first base line where the jack pine is found, the country is very hilly and broken, being full of dry sloughs and small lakes which apparently have neither inlet nor outlet. This is the only portion of the country which shows any agricultural possibilities at all, the soil being sandy loam; the area, however, is insignificant.

On account of the party being accompanied by a geologist, Mr. W. L. Swanson, M.A., sent out by the Department of Mines, no attempt was made to note the geology.

There were no well defined water routes within the limits of the survey. There is a well travelled route from Mack to Cedar Lake. From Cedar Lake supplies were brought to the lake on the fifth mile of the first base line by a series of small creeks which were said to be very indifferent travelling. From this lake a good route was obtained to Sucker Lake and the river running out of Sucker Lake to where it crosses the first base line. The next route used was via Kelley and Dog River to the lake shown on the plan about three miles west of the second meridian and thence north and following the dotted line shown on the plan. This river was said to be very rapid in places and no portages or other signs of use were found except for a short distance north and south of the first base line where it had been used by trappers who have another route branching off to the west, south of the first base line. From this river, which crosses the second base line on the eighth mile, a portage was made along the line to the small lake shown on the fifteenth mile and the lake and river running out of it were followed to Kavitotikwia Lake. This river is full of rapids and extremely crooked and at this time of the year (September) was very poor travelling on account of low water. The whole district covered does not appear to be travelled to any extent except in the winter by trappers, of whom frequent signs were seen.

The usual animal life was present in the shape of moose, deer, bears, beaver, wolves, etc. The most common fish was found to be pike, although it was stated by the Indians that some of the streams contain trout.

With this report are the usual plan, field notes, etc.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS & BENNER,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto, Ont.*

Appendix No. 40.

TOWNSHIP OUTLINES IN DISTRICT OF SUDBURY.

SOUTH PORCUPINE, ONT., December 1st, 1922.

SIR,—I beg to submit the following report of the survey of certain township outlines in the District of Sudbury, made by me during the past summer under instructions from your Department, dated April 12th, 1922.

The survey was commenced on the 29th July at the northwest angle of Township No. 4, which point was, and is, marked by an iron and a wooden post. From this point a line was run west six miles between Townships No. 6 and Alton, an observation having been taken the night of July 27th, and from the same point a meridian was run north between Townships Nos. 5 and 6, 7 and 8, Chalet and 9, and Arden and Biscotasi, a distance of twenty-four miles four chains and twenty-seven and seven-tenths links, to the south limit of the Township of Smuts, intersecting the latter limit, four chains and fifty-one links, west of the southeasterly angle of the said township.

From the six mile point on this meridian a line was run east between Townships 5 and 7 to the westerly limit of the Township of Battersby, intersecting this limit 45.7 links south of the northwest angle, and west six miles between Townships Nos. 6 and 8. Near this six mile point, which is now the corner of four townships, only one iron post, planted by O.L.S. Stewart in his survey of townships along the Canadian Pacific Railway, is in place, and its location with reference to this corner is shown in the field notes accompanying this report.

From the twelve mile point on this meridian a line was run east between the Townships of Chalet and No. 7 to the northwesterly angle of the Township of Marquette, and west six miles between Townships Nos. 8 and 9, crossing the Canadian Pacific right of way. Near this point of crossing posts had been planted by O.L.S. Stewart in his survey mentioned above, but they have been removed and the only evidence of their location is a cairn of stones which is referenced in the field notes of this line, page fifty-two.

From the eighteen mile point on this meridian a line was run east between the Townships of Chalet and Arden to the west limit of the Township of Paudash, and west between Townships No. 9 and Biscotasi to the easterly limit of Township No. 10, intersecting this latter limit 2 chains and 99.6 links south of the northeasterly angle of the said township.

A second meridian was run south from a post planted by O.L.S. Stewart, in his survey mentioned above, south of the Canadian Pacific Railway on the line between Townships Nos. 9 and 10, this post being a piece of gas pipe marked 9 on the east, and 10 on the west side, to the northerly limit of Township H in the Mississauga Forest Reserve, forming the west boundary of part of Township No. 9 and of Townships Nos. 6, 8 and Alton.

Your instructions, including the general instructions relating to the planting of iron posts, were rigidly adhered to in every particular. The base lines were, in all cases, run in the direction indicated as chords of parallels of latitude, passing through the township corners, and the meridians north and south astronomically, observations on Polaris being taken whenever possible. The lines were well opened out and well blazed. Posts of the most durable wood obtainable, at least six inches square, well made and well carved, were planted at all points ordered, each in a cairn of stones where the latter were procurable, and two carefully selected bearing trees marked near each. The iron posts furnished by your

Department were placed where directed in your instructions, and the mounds, pits and trenches well formed in the proper position that applied to each case, except at the point of intersection of the line between Townships No. 9 and Chalet with the westerly limit of the Township of Marquette. This point was 4.5 links south of the northwest angle of the latter township, and as the placing of another iron post, and the making of the necessary pits and mounds, would interfere with those already there, the latter angle was made the point of intersection, and the old posts marked accordingly.

The chainmen were instructed as directed by you, the steel tapes compared with the standard before, and during, the survey; a clinometer used on all grades, and every precaution taken to insure accurate measurements.

TIMBER.

A great part of the area included in the outlines has been timbered over many years ago, but at the present time pulpwood is being taken out in places, and some stands of jack pine adjacent to the Canadian Pacific Railway have been cut quite recently. There is considerable timber of pulpwood size along the first meridian, excepting the last five miles, and along the south boundaries of Chalet and part of No. 7. The timber along the north boundary of Alton, the west boundaries of Alton and 6 and 8, and the east half of the north limit of 6 and 8 is of good quality, much of it being suitable for pulp, with several good stands of jack pine well suited for ties. Along the north and west limits of Alton there is a considerable number of white and red pine, big and apparently of good quality. Two large areas were recently burned over, one between the Hog's Back Channel and the west branch of the Spanish River, on both sides of the line between Townships 8 and 9; the other between the east and west branches of the Spanish River on either side of the line between Townships 5 and 6.

WATER COURSES.

In this district is a network of excellent water courses. East of the C. P. R. the three branches of the Spanish River, and the Dead River, with their connecting lakes, furnish good routes for canoe traffic and river driving, the portages being well cut out and comparatively short. West of the C. P. R. the Indian Lake and the Hog's Back Channel provide a fine route to the Mississaga Forest Reserve.

ROCK FORMATION.

The predominant rock in this area is reddish coloured biotite granite of Laurentian age. It is well exposed on the shores of many of the lakes, and on the steep slopes of some of the hills. On the north limit of Township No. 5 inclusions of Keewatin schist were observed in the granite. On the north boundary of Township No. 8 where the rock is well exposed in the brule area there are several diabase dykes, and on the east shore of Indian Lake a big dyke, similar in nature, some chains wide, on which have been staked a number of claims, was noted, but no mineralization was detected. No indications of economic minerals were observed during the entire survey.

PHYSICAL FEATURES AND SOIL.

The area as a whole is very hilly, and the granite ridges and the lakes have a general north and south direction. The soil of nearly the entire area is a sandy

loam, mostly shallow, with a few small areas of clay, the whole country being unsuitable for agriculture.

FISH AND GAME.

Big pike were taken from many of the lakes and from the Spanish River, and they seemed to be plentiful; no other kinds of fish were seen, but Winnie Lake on the north boundary of Alton Township is locally reported to abound in trout.

Moose and red deer, and indications of them were frequently seen in all parts of area, as were also signs of bear and beaver.

Partridge of two distinct varieties were very plentiful.

WATER POWERS.

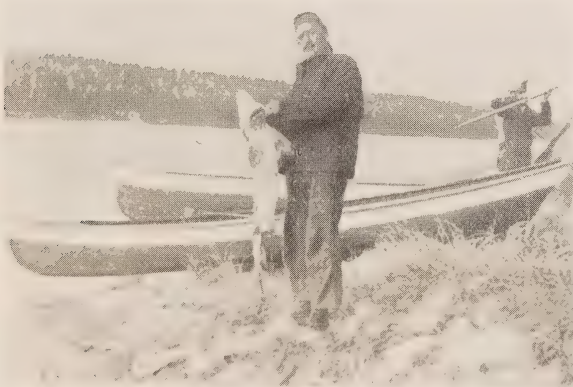
The only water power, worthy of consideration, encountered during the survey is on the west branch of the Spanish River, two chains north of the north limit of Township No. 8, where there is a fall of twelve and one-half feet, which could be, with a short dam, increased to twenty-five feet. There are three rapids on the west branch below this point with a combined fall of about eight feet.

Accompanying this report are the township plan on mounted drawing paper, a timber plan, field notes, the required affidavits, and account in triplicate. I am also returning the set of dies furnished by your Department.

I have the honour to be, Sir,
Your obedient servant,

CHAS. V. GALLAGHER,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario*



Sturgeon caught in the Abitibi.

Appendix No. 41.

SURVEY OF THE ABITIBI RIVER.

SAULT STE. MARIE, December 23rd, 1922.

SIR,—Acting on instructions from you dated 28th March, 1922, to survey the Abitibi River from the north boundary of the Township of Leitch to its mouth, I commenced organizing for this work on May 25th, 1922, leaving Sault Ste. Marie via North Bay and Cochrane with five men and arriving at



Mounding post on Niven's Base Line.

Clute on May 29th. At Clute I bought supplies, etc., and after overhauling same, had part of them together with outfit and canoes teamed to the landing at the Frederick House River, a distance of about four miles. To attempt taking my whole outfit and supplies down the river in one trip in three canoes



Lower Otter Canyon, looking upstream from near foot.

was almost impossible, which made it necessary to make a trip with half the load as far as Island Portage. On June 6th, arrived back at Clute, and after getting remainder of supplies, etc., proceeded down the Frederick House River to its mouth, or its junction with the Abitibi.

From the north boundary of the Township of Leitch (below Kettle Falls) the point of commencement to the Three Carrying Places, a distance of about twenty miles, the river has a strong current but is easily navigable for loaded launches or scows, there being a depth of from ten to twenty-five feet at low water stage. From the Three Carrying Places to Island Portage Rapids, a distance of about four miles, is swift and generally wide and shallow with occasional narrows



Abitibi Canyon, looking up stream to near head of canyon.

of heavy fast water. About the centre of this stretch is the T. & N. O. Railway Crossing, the right of way having been cleared to this point. Following down stream from the foot of Island Portage Rapids to the Lobstick, a distance of about twenty miles, the river is a series of sweeping curves with a width of about twelve chains, almost free from boulders and is good motor boat navigation, considerable portion of the width of the river.



Sextant Rapids, Abitibi River.

From the Lobstick to the foot of the Abitibi canyon (taking in Burntwood Chutes, Clay Rapids, Birch Rapids and Oil Can Rapids) a distance of about seven miles, the river has a very heavy current, with almost continuous rapids, chutes and falls, and can only be navigated by expert canoemen making at least five portages. From the foot of the Abitibi canyon to the Otters, a distance of about twenty-two miles, the river is swift and rapid for the first three miles,

the remaining distance being moderately swift, but could be navigated by loaded launches or scows.

The navigable parts of the three stretches of river heretofore mentioned traverse between banks of clay, generally sloping gently back from the river to a height of from about twenty to one hundred feet or more. Along the unnavigable parts, such as rapids, falls, chutes and canyons, the shores are rocky and in some places precipitous.



The Lobstick, looking down stream towards Burntwood portage from foot.

Continuing down stream from the foot of the Otters to where the river empties into the Moose, a distance of about seventy-five miles, the river becomes wide, shallow and swift, having a fall of about 245 feet, mostly taken up in the Sextant, the Corals, the Nine Mile Rapids and Allan Rapids. The river bed, most noticeable at the above mentioned rapids, is of limestone shale, the



Burntwood Chutes, looking up stream, both channels.

banks are of clay with occasional outcroppings of limestone shale, sloping back to a height of from twenty to sixty feet. In many places along the river's shore will be seen large deposits of oil shale, pieces of which when thrown into a fire will give off heavy black smoke and strong gases. Lignite outcrops are frequent along this part of the river which when dried burns well and gives off

a blue flame with coal-like gas. I am of the opinion that in the lower regions of this and other rivers which I have surveyed there is great inducements for prospecting for oil and coal. One of my party found a float of coal on the Little Abitibi River near its mouth.

WATER POWER.

At the Three Carrying Places the fall at mean water level is twenty-three feet. The site is not especially adapted for water power development as the gorge is wide and flat at this point and it will be discussed hereafter with Island Portage Rapids.

Island Portage Rapids is about thirty chains in length and has a fall of 6.5 feet. Slightly below head of rapids is an island which is a satisfactory location for a dam. A dam has been proposed to give a head of fifty feet; the length would be about twelve hundred feet. This is being investigated by Messrs. Kerry and Chace, engineers. A fifty foot head would flood out the



Burntwood Chutes, west channel.

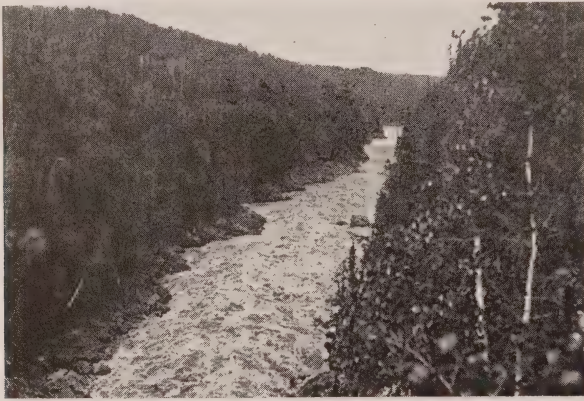
Three Carrying Places and back up the river as far as the foot of the Long Sault Rapids, flooding out Kettle Falls.

At the Lobstick there is a drop of about thirty-six feet at mean water in a distance of forty chains. To develop this a dam could be placed down stream near the foot of the portage where the gorge, which is rocky and canyon like, is about five chains wide with a small island in the centre. This could be developed in conjunction with Burntwood Chutes, the head of which is about twenty-five chains below high rock above noted.

Burntwood Chutes has a fall of twenty-one feet. The foot of this chute is a satisfactory dam site. It would appear easy to place a dam of sufficient height at this point to flood back to the head of the Lobstick, and such a dam would be about four hundred feet long and could develop a head of about fifty-seven feet. A short distance below this the river widens to about ten chains.

The Abitibi Canyon has a fall of ninety-two feet and is about one and three-quarter miles in length, whose walls of rock run up to an elevation of about one hundred and sixty feet. Its width at the water's edge averages about three chains. Water power for this stretch of river could most cheaply be developed by a dam in the lower part of the canyon. The length of spillway required to pass maximum floods might be a controlling factor in location of dam. It would be possible to construct a dam to flood back to the head of the Lobstick develop-

ing a head of 210 feet. The length of dam required for this head would be nearly one thousand feet. A proposed dam is indicated about one mile below head of Canyon, creating a head of 150 feet by flooding water back to foot of Burntwood Chutes, such dam would have a crest length of about three hundred feet. There appear to be several alternative ways of making this development, and it



Abitibi Canyon, looking down stream to near foot of canyon.

requires much detail study. The watershed area at this point is about 8,575 square miles. The flow of the river at the Abitibi Paper Company's development at Iroquois Falls is known and the watershed area at that point is also known, and the additional flow for the total area can be computed, thus giving total flow with fair accuracy.

The Otters is a series of rapids and chutes and in places canyon like and falls over a distance of one and three-quarter miles with a total drop of eighty-



Upper Otter.

seven feet. There is a good dam location at the foot, where the width is about four chains, including a rocky island. A dam to develop the full head of the Otters would be required to be a considerable length, but would be founded on exposed rock for the greater part. Depth of overburden might be considerable at the extreme ends. The river widens out considerably at the foot of the rapids.

TIMBER.

The timber along the river consists chiefly of poplar, spruce, balsam, birch and cedar. In many places the country has been fire swept years ago, but since the timber has grown up to a fair size, such as poplar to sixteen inches, and spruce to fourteen inches. There still remain areas of land with small poplar and birch, also other numerous stretches of river banks with almost virgin forest timbered with spruce to thirty inches and poplar to twenty inches. On the whole taking the above into consideration the timber along the Abitibi River from a pulp standpoint is very good.



Below foot of Upper Otter.

Comparing the Abitibi River with rivers which I have surveyed and travelled, it is the most dependable water route to James Bay, there being at all stages water enough to carry loaded canoes.

I have the honour to be, Sir,

Your obedient servant,

C. R. KENNY,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 42.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF ALGOMA.

PEMBROKE, ONT., January 6th, 1923.

SIR,—I have the honour to submit the following report of the survey of Township Outlines in the District of Algoma, made by me under instructions from your Department, dated April 12th, 1922.

I proceeded from Pembroke via the Canadian National Railway to Oba,

and then down the Oba River to a point nearly opposite the southwest corner of the Township of Hawkins, my starting point, where I found cedar post marked Hawkins on the northeast and Irving on the southeast sides and to which I added Ermine on the southwest and Derry on the northwest sides, and ran my first base line west nine miles, one chain and forty-seven links between Township of Derry and Ermine, to establish the southwest corner of the Township of Derry in accordance with instructions, and owing to this point coming in Lake Kabinakagami I located the point of commencing of line between Derry and Lipton by latitudes and departures on an island and continued west along the south boundary of Township of Lipton about nine miles; then returning to the point of commencement of line between Derry and Lipton, I ran north astronomically to intersection with south boundary of Township of Woolrich, which came in Lake Kabinakagamis and I established the commencement of line between Townships of Lascelles and Lipton by offsets from south boundary of Woolrich and proceeded to run my second base line west a distance of nine miles from the southwest corner of Woolrich, thus establishing the corner of Lascelles, Lipton, Beaton and Larkin Townships; from this corner I ran north between Lascelles and Larkin Townships to intersection with south boundary of Haig Township, and south between Lipton and Beaton Townships to intersection with the south boundary of Lipton, I then ran west along the south boundary of Beaton Township about nine miles and returning to my second base line, I ran west between Townships of Larkin and Beaton a distance of nine miles to the corner of Larkin, Chelsea, Bayfield and Beaton Townships; as this point came in a lake I ran an offset around northwest side of lake and established the point of commencement of line between Larkin and Chelsea which I ran north to intersection with south boundary of Township of Wickstead. I then returned to my second base line and ran south between Townships of Beaton and Bayfield to intersection with south boundary of Beaton on my first base line; returning again to my second base line I ran west between the Townships of Chelsea and Bayfield a distance of nine miles and established township corner from which I ran south along west boundary of Bayfield a distance of nine miles, then returned to my second base line and ran north along west boundary of Chelsea to its intersection with south boundary of Lessard. I also re-ran south boundary of Township of Marjory, part of my contract of 1921. I removed and destroyed all posts, mounds and pits on the abandoned line and am forwarding field notes of new line herewith.

The east and west lines were all run on chords of latitudes, and meridians north or south astronomically as recorded in the field notes; frequent observations for azimuth were taken, the records of which are enclosed in the field notes. The lines were cut out and blazed, wooden posts properly marked planted at every mile, with standard iron posts, pits and mounds at every third mile, as shown in field notes, and in accordance with instructions.

SOIL.

I did not see any land suitable for agricultural purposes, the soil being mostly sandy with stones or boulders, the surface generally being rolling with very few hills.

TIMBER.

Along the south boundary of the Township of Derry east of Lake Kabinakagami the timber is small, principally spruce, jack pine, beech and poplar from four inches to eight inches in diameter with some jack pine and spruce up to

ten inches, but there is some spruce, jack pine, white birch and balsam of gilead up to fifteen inches in diameter on the seventh and eight miles of this boundary. Along the first four miles of the south boundary of Lipton, line runs through old brule with small poplar and white birch, but from the fourth mile post west along this boundary and the south boundary of Beaton the country is fairly well timbered, there being some good jack pine and spruce up to fifteen inches in diameter. On the line between Lipton and Derry the southerly three miles is mostly in lake and from end of fourth mile north timber is small as is also that along line between Lipton and Lascelles. The west boundary of Lipton is fairly well timbered with spruce and jack pine and balsam and birch from six to ten inches in diameter, but the west boundary of Lascelles and the north and west boundaries of Beaton run through old brule with poplar, birch, spruce and jack pine from two to six inches in diameter. There is some fairly good jack pine and spruce along the southerly five miles of the west boundary of Larkin, but from there north the timber is smaller and large spruce and jack pine is scattered. On the south and west boundaries of Chelsea the timber is mostly spruce, balsam, birch and poplar from four to fourteen inches in diameter, while along the west boundary of Bayfield there is some fairly good jack pine and spruce from five to fifteen inches in diameter with balsam and white birch from four to twelve inches. The southeast part of Beaton and the northeast part of Bayfield contains the best timber and on the balance of the area within the limits of this survey the timber is, as yet, not suitable for lumbering operations excepting scattered areas whose timber is suitable for pulpwood; the southeast part of Bayfield and Larkin, northeast part of Beaton and nearly all of the Township of Lascelles has been badly burned over, and is now covered with second growth poplar, white birch, spruce and jack pine from two to six inches in diameter. The only sign of fresh fire that we saw this season was in the southeast corner of Lascelles and appeared to be about one mile north of Kabinakagami Lake.

MINERALS.

I saw no indications of economic minerals.

STREAMS AND LAKES.

The largest body of water encountered was Kabinakagami Lake which extends for about six miles north into the Township of Derry and about five miles into Lipton; in it there are many islands, some of which are of considerable area and nearly all well timbered. The next lake of importance is Kabinakagamis Lake, in the northeast corner of Lipton. There are smaller lakes scattered throughout, varying in length from a few chains up to two or three miles, the larger ones being as a rule not more than twenty or thirty chains wide.

The most important stream being Kabinakagami River, the outlet of lake of that name, and on this there are only three or four short portages between north end of Lake and Canadian National Railway; the next in importance is Shekak River, flowing through Chelsea and Larkin Townships and the northwest corner of Lascelles. This stream is not navigable by canoes in low water as it is badly blocked by logs and driftwood and is not used as a canoe route now that the railroad affords transportation facilities for trappers and hunters. The Little Ground Hog River has its source in the Township of Beaton, flows northerly through southwest corner of Lascelles and the easterly part of Larkin, again enters Lascelles and joins the Shekak, is very shallow in places in low water, but there are only two short portages north of the north boundary of Beaton Township.

There is also a small stream which crosses the south boundary of Lascelles near the five mile post and flows westerly into the Little Ground Hog.

I did not see any falls capable of development.

GAME.

Moose are fairly plentiful; there are also some small deer. In Kabinakagami Lake pickerel are very plentiful, and speckled trout in the Shekak River, the Little Ground Hog and the stream flowing into it in the southwest corner of Lascelles Township, the fire rangers reporting that they have caught them up to three pounds in weight.

The area covered by this survey is not of any value for agricultural purposes, and if fire is only kept out it will yield a considerable revenue from its timber resources in time.

Accompanying this report are a general plan, timber plan, field notes and usual affidavits, with account in triplicate.

I have the honour to be, Sir,

Your obedient servant,

HERBERT J. BEATTY,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 43.

QUETICO PROVINCIAL PARK.

KAWENE, P.O., October 31st, 1922.

HONOURABLE SIR,—I beg to submit my report on Quetico Provincial Park for the fiscal year ending October 31st, 1922.

During the year our staff consisted of an average of seven rangers and a superintendent. This staff is, I think, very inadequate to properly patrol an area the extent of Quetico Park. Unfortunately we lost one ranger by drowning on May 13th, 1922. This is the first serious accident to our staff in the Park. Ranger Stubbs was a strong swimmer and a fairly good canoe-man, but the water being ice-cold, he succumbed before getting ashore. The body has not been recovered, although every means was taken to do so.

As by your advice and authority some preparations were made for the taking alive of some fur-bearing animals, but on account of the drowning accident all available men were engaged in searching for the body for a considerable time, the proper time for taking such animals passed without our having secured any.

In the matter of bush fires we have, considering the weather, been very fortunate, there being only one small fire on White's Island, Basswood Lake.

This burnt over about forty acres covered with scrub and some balsam, containing in all about fifty cords of pulpwood. This speaks well for the care taken by tourists and others passing through the park.

The threatened railway strike hindered many tourists from visiting the park this season, it being mostly Americans who travel here.

Excellent work has been done by the rangers in cutting new trails, cleaning old ones and improving waterways, in order to have easier and quicker access to places, which are threatened by fire. I would strongly recommend that a pump and engine and about one thousand feet of hose, such as is supplied to fire rangers, be supplied to headquarters for fire protection. The buildings at headquarters are without any protection except what might be rendered by the one or two men usually there, but with such equipment they would be reasonably safe. This equipment could be carried by our own gasoline boat down French River and over Pickerel Lake, thus, if necessary, rendering double service.

I find that two new canoes will be necessary for the coming summer.

I would strongly recommend the taking of a number of beaver from certain parts of the park. These animals have become so numerous that in places they have become a nuisance by building their dams across canoe-ways, flooding portages, etc., also along the boundary between Quetico Park and The Superior National Forest, Minnesota, where permits are granted to trap. The American trapper gets the full benefit of the protection afforded by us in so far as the natural overflow from a protected territory is concerned. A good number might be taken each year without any detriment to the park whatever, and also form a nice revenue.

Fur-bearing animals, deer and partridge are very numerous, but the moose apparently have moved to later burns for fresh feeding grounds.

The roofing on some of our shelter huts has been destroyed by hail, but has since been repaired. I also find that about 500 feet of lumber will be required for general repair purposes.

I have the honour to be, Sir,

Your obedient servant,

HUGH McDONALD,
Superintendent.

*The Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 44.

ALGONQUIN PROVINCIAL PARK OF ONTARIO.

HONOURABLE SIR,—I have the honour to submit my annual report for the fiscal year ending October 31st, 1922.

In some respects the fiscal year just drawn to a close proved to be somewhat of an eventful one, in that it witnessed the superannuation of Mr. G. W. Bartlett on April 10th, 1922, who retired after an active and meritorious career of a quarter of a century. The following day, April 11th, the writer assumed the duties of Acting Superintendent.

In order that the Government might possess first-hand knowledge concerning conditions and the extent of its holdings in Algonquin Park, it was found necessary to take an inventory of all buildings, machinery, horses, wagons, furniture, fire-arms, traps, blankets and shelter house equipment in use by the Park Ranging Staff. Much difficulty was encountered in making an accurate inventory, for the reason that no books could be found at headquarters which might prove helpful in this respect. Therefore, it was found necessary to have a personal interview and obtain an affidavit from each ranger, covering a list of articles furnished by the Government.

In due course the inventory was completed and submitted to the Department, the total value of which being \$37,802.20, and includes all buildings at headquarters, forty-eight shelter houses, contents of the whole and all park equipment.

FISHING.

Notwithstanding the past tourist season was short, cold and disagreeable from a weather standpoint, the anticipated number of tourists did not arrive, and at no time were the hotel facilities taxed, while forty per cent. of reservations were cancelled before the season was half over. The revenue received from the sale of fishing licenses, however, exceeded by far the cash receipts of any season heretofore recorded. The sale of domestic and non-resident fishing licenses amounted to \$2,805.00.

There is no sport in our Provincial Park which appeals to visitors more than good fishing and a permanent fish hatchery would be a great acquisition. In this connection I would recommend the building of a hatchery at the lower end of Source Lake, where a never-failing flow of cold spring water is assured and where it could be so easily controlled.

If a hatchery in the park was an established fact, the fry could be kept until one year of age before releasing them in the lakes. The fingerlings, one year of age, would have a fighting chance to survive and are better able to take care of themselves.

Fishing in the waters of Algonquin during the past season was exceptionally good. In the early part of the season, irrespective of the mosquito and black-fly nuisance, several fine catches of speckled trout were taken from Rock, Louise and Bruff Lakes and the white water streams in the locality. From Cache and Big Island Lakes some record catches of grey and land-locked salmon were taken, varying in weight from twelve to sixteen and seventeen pounds. In an effort to keep the waters of the park supplied with fish, some 500,000 trout fry were distributed in the following waters,—Rainy, Brule, Joe, Canoe, Cache and Rock Lakes.

FOREST FIRES.

Although the past summer was very dry and numerous small fires broke out within the park, we should consider ourselves fortunate in escaping with only one serious fire, viz., that of Rock Lake, which burned over an area four miles in length along the G. T. Ry. by an irregular width of three and a half miles.

In the early part of the season, when the section men are engaged in dead-grass burning along their right-of-way, many small fires were started. However, the railway employees, who are usually near at hand, together with the park rangers, joined forces and extinguished these fires before they made much headway or assumed dangerous proportions. The railway sectionmen need some stern education in regard to bush fires. They are in the habit of applying the torch, touching off the dead grass close to the tracks and allowing the fire to burn backward towards the woods.

This is a dangerous practice and a man caught in the act should be expelled from the park.

The erection of two steel observation towers, one at White Trout Lake and one at Cache Lake, connected up by telephone with headquarters, will prove of inestimable value in detecting fire. I must also mention the erection of two wooden observation towers at Little Nipissing and on the Bonnechere River, respectively. It is expected that all towers will be manned and equipped this coming season and splendid results are anticipated. Constant vigilance with regard to bush fires is absolutely necessary.

Owing to the prompt action of park and fire rangers, equipped with the small gas engine, the majority of fires were quickly extinguished and the damages were confined to a few acres.

TRAILS AND ROADS.

Guides to the number of sixty-five were employed in the park during the season of 1922 and the majority of them report that the trails and portages are in fairly good condition. The trails leading from headquarters are in excellent condition and in some instances are clean enough to permit the passage of horse and buggy. As every wind storm causes trouble, many of the trails in constant use must be cleaned out several times during a season and outlying trails made passable.

This season, all guides were required to keep a diary, giving the names of parties guided, duration of trip, route travelled, number of fish taken and the serial number of fishing license in possession of each tourist. Guides must return the diaries, properly filled out to the Superintendent at the end of each week or on completion of a trip. No province in the Dominion of Canada equips a guide with a license to do a lucrative business as cheaply as our Provincial Parks. Not only does Algonquin furnish a license for one dollar, but extends the privilege of travelling over portages and trails, cut out and kept clean by the rangers. The fee should be \$2.00, which seems inadequate.

It may be of interest to note that the extension of a trail or the cutting of a new road to a lake heretofore unfrequented, has an important bearing upon the question of game protection.

As soon as a road or trail is constructed in a new district, the wild animals make use of it to come and go.

It is advisable to have more trails and roads throughout the park. It is a well-known fact that wild animals will follow the trails, travelling along the lines of least resistance, the same as humans. Poachers will avoid all well-worn trails for fear of detection.

POACHING.

Complaints by the score arrived at the Department, to the effect that the park was frequently invaded by outside trappers, creating the impression that portions of the park boundary were unprotected and poachers could come and go at will.

These conditions led to much adverse criticism, that the rangers were remiss in their duties and reflected strongly against the Superintendent.

A new plan was introduced in an endeavour to control the outlaw element, and with the assistance of the rangers the enforcement of the park regulations was rigidly carried out.

In the course of a fortnight, ten poachers were brought to headquarters. Fines were imposed to the extent of \$540.00. Rifles, canoes, traps, camp outfit were confiscated and one particularly vicious culprit was incarcerated at North Bay.



Ranger's Shelter House, Big Island Lake, Algonquin Park.

The result of concerted action, assisted by a flying squad of rangers, became apparent almost immediately. The public took considerable interest and gave the matter wide publicity, and I am of the firm opinion that, for a time, Algonquin Park was absolutely free from poachers.

ALGONQUIN PARK TELEPHONE SYSTEM.

There are twenty-six or twenty-eight telephones installed and in use by rangers and park headquarters, hotels, lumber companies, physicians and cottagers. The line is connected with the Bell Company at Huntsville, thus affording communication with Toronto and points outside of the park.

Mr. Fraser, proprietor of Mowat Lodge, had on many occasions explained

the urgent need of telephonic connection with the outside world, not only for the important part it would play in case of forest fires, but the hundreds of visitors to Mowat Lodge would be very thankful for the convenience. Mr. Fraser volunteered to cut, haul out and stand the poles if the Department would run the wires. This arrangement appeared satisfactory and the line was completed on October 2nd, 1922, at a cost of less than one hundred dollars to the Department.

From Rock Lake Station to Menwahtay the old wire, which had been in use for some ten years, was taken down and replaced with new No. 9 wire.

It is advisable that arrangements should be made with the telephone subscribers, so that the Department may collect the regular annual rental on each 'phone in addition to the tolls on long distance calls.

A great many new applications were received during the past year for camping and cottage sites. The revenue received in rentals and accompanying new applications, amounted to \$1,562.67.

Received from rental of team of horses, \$112.50.

It is a well-known fact that there are persons who visit the park every summer for the purpose of collecting eggs, and a regulation should be enacted forbidding the taking or destroying of any nest or eggs of game birds, insectivorous or song birds, without a permit from the Minister of Lands and Forests.

I am very sorry to report the sudden death of Ranger Henry Foy, who died in Eganville, May 2nd, 1922.

I am also very sorry to report a fatal accident which occurred at Whitney, June 4th, 1922. Jos. Davis, a young aviator, went out in a small motor boat to guide one of the new big planes to anchorage. Misjudging the distance, he approached too close and the wash of the plane upset the boat, throwing Davis into the Lake. Davis left a wife and four small children.

GAME AND PREDATORY ANIMALS.

Notwithstanding the perpetual menace of the timber wolf, the deer are everywhere abundant.

The rangers have had a large measure of success in the destruction of predatory animals. In addition to the increase of big game, the valuable fur-bearing animals, such as beaver, fisher marten, mink and otter are increasing in the park.

Algonquin Park is serving well one of the great purposes for which it was created. A wonderful fountain of wild life which overflows its invisible boundaries to the benefit of the border hunters and trappers.

REVENUES.

The Department of Lands and Forests is not, nor has it been, receiving the revenue from Provincial Parks to which it is entitled. Many sources of revenue remain untouched and in order to secure the control which is necessary to the proper administration of the park, regulations should be enacted to govern and license every business now carried on, or which may be introduced in the future. In this connection I am mentioning the sources from which revenue is derived at the present time, viz.:

Resident Fishing License.

Non-resident Fishing License.

Guides' License—(should be two dollars instead of one).

Timber License.

Wood-cutting License.

Boarding and Tourist Houses.

Hotels and Resorts.

Lease of Lots, Rentals, etc.

Campers' License.

Tolls collected from Algonquin Park Telephone Line.

The following suggestions are worthy of consideration:—

License to take gravel.

Annual charge to telephone subscribers.



Beaver dam above White's Lake, Algonquin Park.

License to graze live stock within the park.

Retail store of every description.

Horse liveries.

Boat and launch liveries.

Carpenter contractors, builders, living and doing business in park.

Pool and bowling alley license.

Pedlar's license—the man with a pack should be licensed.

Egg collectors.

Taxidermists. Make it a misdemeanour to take any animal or bird license within the park for the purpose of mounting, without a permit.

License to take sphagnum moss.

The Department should have the entire revenue from live animals secured for breeding stock, and the sale of skins from all animals taken in the park.

I have the honour to be, Sir,

Your obedient servant,

JOHN W. MILLAR,

Acting Superintendent.

*The Honourable Beniah Bowman,
Minister of Lands and Forests,¹
Toronto, Ontario.*



Provincial Parks' Exhibit, Toronto Exhibition, 1922.

Appendix No. 45.

RONDEAU PROVINCIAL PARK,
MORPETH P.O., ONT., October 31st, 1922.

HONOURABLE SIR,—I beg to submit my report for the fiscal year ending October 31st, 1922.

Rondeau Provincial Park is becoming more popular every year as a summer resort, a greater number of visitors coming here this last year than ever before. Lying as it does, between Rondeau Bay and Lake Erie, the park, with



Road in Rondeau Park.

its 5,000 acres, affords great interest to lovers of nature. The forest itself is the only one of its kind in Western Ontario, and as most of it is in its natural state, the beauty of its wildness is unsurpassed. It is densely wooded with most valuable timber, considerable pine, walnut, whitewood and all the varieties of hardwood being found here. The trees are tall, straight and well proportioned.

In these beautiful woods may be seen any number of deer. They have

become very numerous of late years and threaten to destroy all chances of reforestation as they destroy all the young growth. Steps are being taken to lessen their number, nearly two hundred having been shot this last winter for venison, which was sold at the park by the carcass, bringing in a revenue of over \$1,600.00. Plans are being made to confine a certain number of the deer in an enclosure of perhaps 100 acres and if this is done, reforestation would not be impeded as it is, under present conditions.

Black squirrels are very numerous. The beaver colony is thriving and they are evidently very energetic little animals as shown by their work. There are plenty of muskrats throughout the marshes. The wild duck season, from the sportsman's point of view, has been very good, ducks having been just as numerous as in other years.

The Canadian geese and wild turkeys have not increased in numbers as in other years on account of the racoons and skunks breaking up their nests and destroying their young.

Pheasant rearing has been very successful with the different varieties we have here. We have a good stock of reeves, goldens, Lady Amhersts, silvers, Chinese and English pheasants. Many of the English pheasants have been liberated, and a large number of eggs have been supplied to those who are interested in the rearing of these beautiful birds.

Over forty new cottages were built on the park this year, ranging in price from \$1,000.00 to \$3,000.00. Lots are still very much in demand. Last spring a new survey was made of ninety-one lots and the greater number of these are already taken. Many communications are received every year asking for hotel accommodation and we hope in the near future to see a modern summer hotel erected, which will provide ample accommodation for the public.

Tenting is very popular. The grounds are ideal and the beautiful oaks furnish shade and shelter.

Some new roads have been constructed this year, at an expenditure of about \$1,700.00. Bowman Avenue, at the east end of the park, has been levelled and clayed, as has also a road known as the Lake Shore Road, connecting Bowman Avenue and the "Loop." These roads will be gravelled this coming winter.

One of the greatest improvements the park has ever had or could have, is that of the installation of the Hydro-Electric, which was completed about the middle of July last. It is greatly appreciated by the public and is a wonderful boon to the place, which was formerly in dense darkness.

A large modern ice-house was built on the park this year. The lessees of the public stand have control of it and they supply ice at a moderate price to all who require it.

Angling has been good on the bay this year, and the addition of a boat livery fills a long-felt need.

Another convenience this year has been the establishing of a gasoline and oil station. This convenience has indeed been greatly appreciated by the travelling public.

I have the honour to be, Sir,

Your obedient servant,

GEORGE GOLDWORTHY,

Park Superintendent.

The Honourable Beniah Bowman,

Minister of Lands and Forests,

Toronto, Ontario.

Appendix No. 46.

TORONTO, ONT., October 31st, 1922.

Honourable Beniah Bowman, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit my report of the work performed by the Colonization Roads Branch of the Department of Lands and Forests for the fiscal year ending October 31st, 1922.

This report is presented in tabulated form. On its final page is shown a summary of the total expenditures on the various classes of work performed.



Mining Road, Frontenac County.

The total expenditure for the year was \$671,184.48. Of this amount \$414,865.74 was expended directly by this department upon roads and bridges in approximately three hundred townships. The expenditure for inspection, engineering and miscellaneous services was \$33,710.19. The remainder, \$222,610.55, was

distributed as grants towards the expenditures made by one hundred and ninety-nine municipalities, who passed Road, Machinery, and Road Overseer by-laws, in accordance with the provisions of the Colonization Roads Act.

The inspectors in nearly every district have acted as paymasters, and while this has increased the burden of their duties, nevertheless, it is proving more satisfactory than appointing overseers to handle the money and make the expenditures.



Road Construction in Muskoka.

The efficiency could be further increased by providing clerical assistance for the inspectors, and furnishing them with light motor cars to supervise their work.

More attention was given during the past fiscal year to the proper surveying and locating of new roads and diversions from roads previously constructed. Municipalities and district organizations are co-operating with this department more than ever before, but there is still room for marked improvement.

I would strongly urge that legislation be enacted, making all grants conditional on those benefited being compelled to assume some of the burden of, and responsibility for, the cost in every expenditure.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Superintendent Colonization Roads.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
1	Aberdeen Township roads.....								
2	Aberdeen and Galbraith Township rds..								
3	Addington road.....	1,600	66	1200	40	gravel	1,116	16	2,400
4	Airy Township roads.....								
5	Admaston Township roads.....								
6	Albemarle Township roads.....								
7	Algona North Township roads.....								
8	Algona South Township roads.....								
9	Alice and Fraser Township roads.....								225
10	Allan Township roads.....	400	20	240	20	gravel	40	7	25
11	Anson and Hindon Township roads.....								12
12	Anstruther Township roads.....								
13	Appleby Township roads.....	78	14	78	12	gravel	20	6	156
14	Armour Township roads.....	60	30	130	16	gravel	130	6	20
15	Armstrong Township roads.....	290	50	160	28				
16	Assignack Township roads.....	90	40	90	24	gravel	20	7	
17	Aweres Township roads.....	1,710	66	1570	30	gravel	540	6	1,600
18	Awrey Township roads.....	236	66	212	22				
19	Badgerow Township roads.....	684	16	468	12				
20	Bagot Township roads.....								
21	Baldwin Township roads.....	390	40	280	20	gravel	50	7	20
22	Balfour Township roads.....								
23	Bangor, Wicklow and McClure Tp. rds..								
24	Barber and Tudhope Township roads...	160	30	160	30				
25	Barrie Township roads.....								
26	Barrie Island Township roads.....								
27	Barry's Bay and Madawaska road.....	2,240	66	400	30				
28	Bastedo Township roads.....								
29	Baxter Township roads.....	80	16	80	16				
30	Bedford Township roads.....								240
	Bedford Tp. Richardson Mine road....	600	60	640	22	stone	640	12	1,280
31	Beauchamp Township roads.....								
32	Bethune Township roads.....	100	20	100	16	gravel	100	8	200
33	Bexley, Carden and Laxton Tp. roads...								
34	Bidwell Township roads.....	150	20	150	20	gravel	10	6	150
35	Bigwood Township roads.....	250	40	380	14	gravel	204	6	237
36	Billings Township roads.....	910	40	75	20	gravel	110	8	220
37	Blezard Township roads.....								
38	Bonfield Township roads.....	375	40	495	18	gravel	20	10	400
39	Boulter Township roads.....	465	40	465	20	gravel	40	8	930
40	Bracebridge-Baysville road.....								400
41	Brethour Township roads.....	303	35	210	30	gravel	60	6	640
42	Bright Township roads.....								
43	Broder Township roads.....	560	33	800	30	gravel	1,105	9	1,402
44	Bromley Township roads.....								
45	Brougham Township roads.....								
46	Brudenell Township roads.....	350	40	350	20	gravel	100	10	1,000
47	Buchanan Township roads.....								
48	Bucke Township roads.....								
49	Burleigh Township roads.....								
50	Burpee Township roads (Manitoulin)...								180
51	Burpee Township roads (Parry Sound)...								20

COLONIZATION ROADS BRANCH.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic yards	Side-Brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	12	wood	5	iron	stone	400	15	18	460	22	gravel	540	6	2.00	\$ c.	1
									30	20	gravel	140	5	.50	200.47	2
			14	metal	stone	400	960	20	50	18	gravel	130	9	8.50	14,100.00	3
			11	wood					1,735	14	gravel	65	8	.50	1,607.24	4
									750	25	gravel	550	8	2.50	502.75	5
											stone	380	5	1.19	600.00	6
			7	cedar			470	15	1,550	16	gravel	575	10	5.25	1,121.08	7
			6	cedar			150	35	2,515	20	gravel	300	12	8.25	1,715.00	8
			2	cedar			275	18	1,695	18	gravel	700	8	5.50	1,375.98	9
			11	metal	stone	25	410	12	130	24	gravel	545	7	3.00	1,549.94	10
1	9	cedar	4	cedar	earth	72			180	18	gravel	345	6	2.00	598.70	11
			2	stone	stone	11			527	12	gravel	701	6	3.75	300.00	12
			11	cedar					758	14	gravel	48	6	3.00	950.10	13
			11	cedar	clay	190			240	18	gravel	320	8	1.50	1,205.18	14
			2	cedar	clay	2,930			254	24	gravel	1,031	6	5.15	4,278.48	15
			4	wood							gravel	450	8	1.68	1,093.10	16
4	25	cedar	5	cedar	earth	4,339								8.00	9,554.79	17
			8	wood	earth	360								.75	500.00	18
1	10	cedar	12	cedar	rock	20			1,263	14	gravel	246	6	5.75	4,056.27	19
			4	cedar			400	40	2,140	18	gravel	800	5	6.75	1,117.17	20
			4	wood	earth	590			300	22	gravel	100	6	2.25	1,504.82	21
			1	wood	stone	920	160	10	80	30	gravel	230	10	1.00	1,446.35	22
			8	cedar	stone	350	40	20	1,474	18	gravel	136	7	5.00	998.23	23
			4	t'm'r'c			200	20	620	30	clay	80	8	2.50	1,150.00	24
			5	stone	stone	50	35	10	52	14	gravel	216	9	.75	451.54	25
			4	wood					280	20	gravel	790	7	2.60	1,298.41	26
														7.00	990.00	27
			8	cedar					462	14	gravel	416	8	2.00	751.18	28
			14	cedar			80	30	200	18				1.00	800.15	29
			13	wood	stone	540	180	20	812	14	gravel	571	8	5.00	2,640.63	30
3	12	cedar	5	metal	rock	25,735								2.00	21,759.27	31
			9	t'm'r'c	clay	600			900	20	gravel	565	6	4.00	1,900.00	32
1	16	cedar	16	cedar			150	16	400	12	gravel	455	5	2.50	1,001.86	33
			3	tile	stone	191			225	18	gravel	432	6	4.00	999.40	34
			7	wood	earth	1,029	1,980	20	840	30	gravel	1,350	10	9.00	3,950.83	35
1	16	wood	5	wood	earth	75					gravel	82	7	1.50	1,546.96	36
			10	rock	stone	500	680	20	240	22	gravel	890	7	7.00	3,351.63	37
			2	cedar	earth	1,000			160	33				.50	199.71	38
			25	wood	earth	340			1,755	16	gravel	215	6	7.52	3,496.52	39
			11	wood					460	18	gravel	55	6	3.00	1,510.62	40
1	24	rep'd	2	stone	rock	5,447	200	12	80	16	gravel	320	7	2.00	5,007.51	41
			3	t'm'r'c	clay	200	530	24	50	30	gravel	175	6	2.75	2,940.00	42
			4	wood			180	14	80	18	gravel	700	6	2.05	999.57	43
3	12	cedar	10	cedar	earth	370	1,200	33	1,600	20	gravel	1,004	8	12.66	4,607.63	44
							640	20	1,550	15	gravel	600	8	5.00	642.00	45
			3	cedar			200	20	450	18	gravel	400	6	2.10	501.80	46
			11	stone	stone	1,745	940	30	2,190	20	gravel	200	7	8.25	2,420.85	47
			4	cedar							gravel	100	8	.37	150.00	48
									300	20	gravel	294	6	1.00	2,400.00	49
			3	cedar					3,227	10	gravel	738	8	11.00	1,710.75	50
			6	wood	earth	555	440	12	960	24	gravel	660	7	4.00	2,158.21	51
1	12	cedar	4	cedar			350	25	200	16				1.10	402.50	52

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
52	Burwash Township roads	78	18	78	14				
53	Calabogie and Wilson road	1,600	50	640	20				1,280
54	Caldwell Township roads								
55	Calvin Township roads	275	40	145	20	gravel	35	16	105
56	Campbell Township roads	750	66	450	20				590
57	Cameron Township roads	245	40	345	15	gravel	27	10	
58	Cane Township roads								378
59	Capreol Township roads								160
60	Carden Township roads								
61	Cardiff Township roads								
62	Cardwell Township roads	80	30	80	16				
63	Carling Township roads	100	45	160	16	gravel	40	6	30
64	Carlow Township roads								
65	Carnarvon Township roads	240	60	160	24	gravel	160	7	80
66	Cartier Township roads	40	66	80	10	gravel	160	8	
67	Casey Township roads	280	20	280	20				
68	Casimir Township roads	198	16	198	12				12
69	Cavendish Township roads								
70	Chaffey Township roads	40	20	40	20				
71	Chandos Township roads								
72	Chapleau Township roads					gravel	333	17	500
73	Chapman Township roads								
74	Chisholm Township roads	275	40	335	15	gravel	45	10	85
75	Christie Township roads	137	40	120	16	gravel	80	6	160
76	Clarendon Township roads	90	50	90	18	gravel	90	8	180
77	Cobden Township roads								
78	Cobden, Patten and Parkinson road	3,930	66						
79	Cockburn Island roads	200	50			gravel	230	7	200
80	Cosby Township roads	404	16	391	14	gravel	18	6	390
81	Cosby and Delamere Tp. roads (Bdy.)								
82	Cosby and Martland Township roads	140	16	140	14				
83	Creighton Township roads	40	16	40	16				
84	Crerar Township roads	78	16	78	12				
85	Crosby North Township roads			110	14	gravel	110	7	
86	Crosby South Township roads			640	12	gravel	100	5	640
87	Dalhousie Township roads								
88	Dalton Township roads								
89	Darling Township roads								
90	Dawson Township roads	60	40	60	22	gravel	180	6	
91	Day Township roads								
92	Delamere Township roads	80	16	80	12	gravel	17	6	65
93	Denbigh Township roads	10	30	10	30	gravel	10	8	20
94	Digby Township roads								
95	Dill Township roads	140	20	295	18	sand	75	10	340
96	Dowling Township roads	70	60						
97	Draper Township roads								
98	Dryden Township roads	100	24	66	12	gravel	100	10	260
99	Dungannon Township roads								
100	Dunnett Township roads								
101	Dymond Township roads								
102	Eastnor Township roads	464	66	684	24	gravel	100	6	684
103	Elzevir Township roads								

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE						MILEAGE	EXPENDITURE	NUMBER	
Number	Span	Material	Number	Material	Material	Cubic yards	Side-brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			3	wood					200	14	gravel	30	6	1.00	\$ c.	
			8	wood	stone	1,500								5.00	499.17	52
			13	wood	rock	5			534	16	gravel	1,211	7	3.70	4,950.00	53
			5	wood					865	16	gravel	435	8	3.61	2,488.98	54
			10	wood	earth	625	380	30	180	20	gravel	1,060	7	6.20	2,007.12	55
			3	t'm'r'c					370	15	gravel	10	10	2.20	3,930.21	56
2	16	wood		sand		1,400	60	12	1,050	30	gravel	445	6	3.20	1,629.87	57
			3	stone	earth	18	160	16	1,120	33	gravel	960	12	3.50	2,839.90	58
			9	wood	earth	167	245	30	319	22	gravel	548	6	2.00	1,196.16	59
			14	wood	rock	195	260	20	360	20	gravel	155	6	2.00	1,214.55	60
			6	cedar	stone	60	280	20	230	18	gravel	20	5	1.18	602.59	61
			3	cedar	earth	160									1,000.64	62
			10	wood	earth	200	40	20	330	18	gravel	172	5	1.02	501.40	63
							80	12	380	26	gravel	920	7	4.39	499.80	64
														.50	2,604.90	65
			4	t'm'r'c			240	40	560	30	gravel	469	6	3.94	150.25	66
			2	pine					117	12				1.00	3,670.00	67
			1	cedar			316	12	1,435	12	stone	13	7	4.50	731.76	68
			4	cedar	stone	215					gravel	190	5	.75	200.24	69
1		rep'd	5	cedar			310	40	515	10	gravel	385	7	2.61	702.88	70
			9	wood										1.12	706.65	71
			4	cedar			400	24	320	14	gravel	240	7	1.25	2,000.00	72
			22	wood					1,285	15	gravel	611	8	5.18	380.00	73
			9	cedar	clay	2,406	400	12	560	16	gravel	480	7	2.18	3,578.70	74
			11	stone	earth	400	320	20	1,075	14	gravel	1,095	8	6.41	3,028.30	75
			1	wood			40	16	50	20	gravel	140	6	.50	2,146.58	76
1	10	wood		earth		100	360	55	240	30				13.40	298.36	77
			2	wood	earth	400	90	12			gravel	100	7	.93	5,999.78	78
			16	cedar	rock	10			867	14	gravel	400	6	3.90	653.75	79
															2,608.82	80
															240.00	81
														.44	202.55	82
2	16	cedar	1	cedar	earth	550			180	16				.75	240.00	83
			7	cedar			10	20	1,095	14	gravel	620	6	3.94	2,000.00	84
			9	cedar			50	20	388	14				1.49	793.21	85
									105	14	gravel	458	9	4.10	1,583.15	86
			2	cedar			400	30	1,000	20	gravel	575	10	3.10	901.98	87
			2	tile	stone	40	45	20			gravel	576	6	1.80	1,103.25	88
			5	cedar			600	25			gravel	600	8	1.85	850.69	89
														.56	589.37	90
			7	cedar					80	22	gravel	90	6	.25	200.00	91
			6	cedar	earth	45	30	20	87	14	gravel	48	6	.52	603.13	92
			2	cedar	stone	38	85	30	295	14	gravel	210	8	1.13	870.00	93
									22	16	gravel	93	6	.30	300.25	94
			10	wood	stone	47								.92	1,002.50	95
			1	cedar	cord'y	500								.30	100.00	96
			6	stone	rock	100	60	16	140	18	gravel	660	5	2.07	1,203.11	97
2	16	cedar	8	pine	earth	400	50	35	160	15				.80	777.40	98
			7	cedar	earth	256	187	20	626	18	gravel	428	5	2.10	1,311.65	99
			8	wood	rock	11	25	20	827	14	gravel	370	6	3.40	1,361.81	100
1	20	wood	2	wood	clay	25			320	28	gravel	990	6	3.70	4,810.00	101
1	10	cedar	11	metal	earth	400	600	12	535	22	gravel	637	7	4.70	808.41	102
											gravel	140	7	.44	151.75	103

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
104	Espanola-Lee Valley Old Trunk road.....								
105	Espanola-Lee Valley New Trunk road.....	300	30	480	20				320
106	Fairbank Township roads.....								
107	Falconbridge Township roads.....	354	30	354	12	gravel	194	9	503
108	Faraday Township roads.....			500	18	gravel	275	5	500
109	Fenwick Township roads.....			51	30	gravel	51	6	102
110	Ferris Township roads.....	630	40	430	16	gravel	135	10	860
111	Field and Springer Bdy. road.....	69	16	69	12				
112	Field and Grant Township roads.....								
113	Firstbrook Township roads.....								
114	Franklin Township roads.....	165	30	70	16				
115	Freeman Township roads.....								
116	Frontenac Trunk road.....								
117	Galbraith Township roads.....								8
118	Galbraith and Aberdeen Tp. roads.....								40
119	Galway Township roads.....	300	50	23	14				
120	Garson Township roads.....								350
121	Garson and Falconbridge Tp. road.....								25
122	Gladstone Township roads.....								
123	Glamorgan Township roads.....	800	8	158	15	gravel	65	6	
124	Gordon Township roads.....								20
125	Gould Township roads.....	290	66	50	30	gravel	60	6	160
126	Grattan Township roads.....								
127	Griffith and Matawatchan Tp. roads.....								
128	Gurd Township roads.....								
129	Haddo Township roads.....								60
130	Hagar Township roads.....	1,340	66	320	22				320
131	Hagerman Township roads.....	20	45	20	18				
132	Hagerman and Ferguson Tp. roads.....								
133	Hagarty Township roads.....	425	40	425	20				
134	Hallam Township roads.....	60	50	110	18	earth	45	6	110
135	Hallam and Merritt Township roads.....								
136	Hallam and Shakespeare Tp. road.....								40
137	Hanmer Township roads.....								160
138	Harley Township roads.....								70
139	Harris Township roads.....								175
140	Harvey Township roads.....								
141	Hawley Township roads.....	80	15	180	12	gravel	12	10	180
142	Head Township roads.....	60	40	60	16	gravel	25	10	60
143	Henwood Township roads.....	80	30	60	24				120
144	Hilliard Township roads.....	80	24	80	24				160
145	Hilton Township roads.....								80
146	Himsworth North Township roads.....	480	40	200	18				28
147	Himsworth South Township roads.....	290	45	155	16		80	6	160
148	Hinchinbrooke Township roads.....								290
149	Hodgins and Gaudette Tp. roads.....	400	40	375	20				150
150	Horton Township roads.....								
151	Howland Township roads.....								
152	Hudson Township roads.....								72
153	Hugel Township roads.....	312	16	226	12				452
154	Humphrey Township roads.....	80	60	80	18	gravel	80	8	190
155	Hungerford Township roads.....								

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic yards	Side-brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
					earth	300	600	12	340	22	gravel	150	7	2.00	\$ c.	
			17	metal	earth	105			195	22	gravel	182	7	2.12	599.25	104
			12	cedar				90	320	12				1.00	1,002.75	105
1	30	wood	6	cedar										1.70	248.95	106
			2	cedar										1.70	804.05	107
4	20	wood			earth	1,140			95	20	gravel	200	6	2.16	799.49	108
1	18	pine	35	wood	sand	300	264	16	514	24	gravel	196	6	1.76	1,990.41	109
					stone	120	200	5	2,045	16	gravel	1,532	8	9.40	6,488.07	110
			1	cedar										.21	206.40	111
			3	cedar	clay	30			320	14	gravel	140	6	1.00	780.00	112
			9	wood	clay	592			310	22	gravel	180	6	1.00	700.00	113
			14	cedar	earth	240	200	16	525	16	gravel	25	5	2.10	1,501.09	114
			2	stone	earth	60	80	25	80	18	gravel	100	5	.31	500.65	115
			14	metal	stone	2,053	75	20	592	18	gravel	600	10	2.40	5,440.70	116
							80	16	280	16	gravel	565	6	1.80	801.65	117
1	12	cedar			rock	10	80	16	160	12	gravel	40	5	.50	300.00	118
			10	cedar			149	10	815	12	gravel	392	8	3.83	1,208.55	119
			4	cedar					410	16				1.28	302.20	120
			3	cedar			960	10	640	20	gravel	480	10	3.00	995.70	121
			1	wood	earth	60			139	18	gravel	419	6	1.40	750.00	122
1	18	rep'd	17	metal	stone	97	200	20	600	18	gravel	245	6	4.40	900.79	123
			8	wood	earth	80	80	30	260	24	gravel	755	7	2.36	1,727.28	124
			6	wood	earth	250			250	18	gravel	130	6	1.70	805.37	125
			2	cedar	gravel	900	600	20	950	18	gravel	250	10	2.97	807.37	126
1	10	cedar	5	cedar			300	20	950	18	gravel	700	8	2.97	752.89	127
			8	cedar			1,440	20	1,280	16	gravel	300	6	5.00	1,198.05	128
			4	cedar					90	14	gravel	26	6	.28	309.10	129
			9	cedar	earth	294			310	16	gravel	337	7	5.22	1,357.86	130
			1	cedar			100	20	120	16	gravel	70	6	2.00	298.20	131
			8	cedar			1,000	25	1,000	12				3.13	301.50	132
			7	cedar	earth	1,200	975	25	2,700	16	gravel	875	10	9.76	2,527.55	133
1	16	wood	9	wood	earth	540	300	14	540	20	gravel	80	5	2.04	604.12	134
					stone	250			320	22	gravel	100	6	1.00	299.99	135
					stone	68			70	24	gravel	80	5	.25	300.03	136
75	cedar				earth	60	385	50	320	33	earth	65	33	2.20	344.80	137
1	16	cedar	6	cedar	clay	1,613	370	16	448	24	gravel	483	6	2.70	3,640.00	138
re	paired		10	cedar			215	28	215	28	gravel	1,222	6	4.24	3,320.00	139
			13	stone		20	929	20			gravel	560	8	3.70	1,107.44	140
			2	cedar	earth	450								.56	506.75	141
			3	wood										.89	802.00	142
14	pine		5	wood	clay	3,400			660	30	gravel	490	6	3.34	3,020.00	143
					clay	3,400					gravel	190	6	.90	3,030.00	144
								60	80	20	gravel	130	6	.41	302.56	145
			4	t'm'rc										1.50	799.00	146
10	cedar		10	cedar	stone	449	320	50	410	22	gravel	390	6	2.20	1,308.07	147
			3	conc'r	stone	115	10	10	120	16	gravel	465	8	1.50	1,060.00	148
42	cedar		13	cedar	earth	5,400			560	28	gravel	250	6	2.92	3,092.39	149
							150	35			gravel	475	10	1.50	404.20	150
			1	wood	stone	320			30	26	gravel	70	8	.25	667.74	151
			12	cedar	clay	200	440	15	840	28	gravel	1,006	6	5.50	3,950.22	152
			13	cedar					704	14	gravel	172	6	3.29	1,554.55	153
			5	metal	earth	220	300	20	210	14	gravel	210	7	.90	1,099.87	154
			2	cedar	stone	50	120	16	512	18	gravel	682	5	2.13	979.98	155

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIP	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
156	Huntingdon Township roads.....								
157	Janes Township roads.....	280	12	280	12				560
158	Jennings Township roads.....								
159	Johnson Township roads.....								
160	Johnson and Aberdeen Tp. road.....								
161	Johnson and Tarbutt Township road.....								155
162	Kehoe Township roads.....			350	18	gravel	350	6	
163	Kennebec Township roads.....								
164	Kerns Township roads.....								100
165	Kirkpatrick Township roads.....	78	18	78	14				
166	Kirkpatrick and McPherson Tp. roads.....								
167	Kirkwood and Grasett Township roads.....	25	60	25	20	gravel	25	5	60
168	Korah Township roads.....								
169	Laird Township roads.....								40
170	Lake Township roads.....								
171	L'Amable to Maynooth Trunk road.....								
172	Lanark Township roads.....								
173	Laurier Township roads.....	88	40	88	14	gravel	48	7	
174	Lavant Township roads.....	600	40	600	30				
175	Laxton Township roads.....								20
176	Laxton and Bexley Township roads.....								
177	Lefroy Township roads.....								
178	Lefroy and Thessalon Township roads.....								
179	Limerick Township roads.....								
180	Lindsay Township roads.....								
181	Lorne Township roads.....	520	35	700	16	gravel	180	7	730
182	Loughborough Township roads.....								
183	Loughrin Township roads.....	1,150	60	750	30				160
184	Louise Township roads.....	300	30	200	16				
185	Lount Township roads.....								
186	Lount and Machar Township roads.....								
187	Lumsden Township roads.....								400
188	Lutterworth Township roads.....								12
189	Lyell Township roads.....								
190	Macaulay Township roads.....								
191	Macaulay and Draper Townline road.....								490
192	Machar Township roads.....								
193	Madoc Township roads.....								
194	Mara Township roads.....	650	66	668	27	sand	14	8	
195	Marmora Township roads.....								
196	Martland Township roads.....								
197	Martland and Cosby Township roads.....								
198	Martland and Falconer Township roads.....	70	16	70	14				
199	Martland and Scollard Township roads.....	434	16	434	12				
200	Mason and Scollard Township road.....	110	16	110	12				
201	Matchedash Township road.....	50	16			gravel	45	8	
202	Mattawan Township roads.....	60	40	55	18				
203	May, Salter and Harrow Township roads.....								70
204	Mayo Township roads.....								
205	McDonald Township roads.....								100
206	McKellar Township roads.....								
207	McKenzie Township roads.....								

COLONIZATION ROADS BRANCH.—Continued.
MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE								MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED						
Number	Span	Material	Number	Material	Material	Cubic Yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet				
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
			4	cedar					409	20	gravel	171	5	1.28	\$ c.	156	
			4	pine										.87	316.13	157	
			3	cedar					480	14	gravel	440	6	1.50	801.23	158	
			2	wood	earth	350	160	30	120	20	gravel	170	5	.53	300.59	159	
			2	wood			40	12	200	22	gravel	160	6	.63	301.07	160	
			4	wood					77	20	gravel	160	5	.65	349.90	161	
			4	wood										1.10	522.50	162	
			11	cedar	earth	148	30	40	57	14	gravel	301	8	.94	901.66	163	
			1	t'm'rc			100	20			gravel	798	6	2.49	3,480.80	164	
			4	wood					742	14	gravel	575	6	2.72	1,403.00	165	
1	12	cedar	3	wood					306	14	gravel	580	6	1.80	749.08	166	
			7	wood	stone	530	40	10			gravel	320	6	1.08	875.62	167	
				clay		1,696					gravel	37	7	.13	1,000.00	168	
			1	cem'nt	earth	550			110	22	gravel	190	6	.60	599.62	169	
				stone		12			162	10				.52	100.50	170	
			12	cedar	earth	768	110	20	2,199	20	gravel	899	6	6.87	3,002.99	171	
			4	cedar			200	30	1,575	25	gravel	950	8	4.90	1,259.82	172	
			5	cedar			100	20	130	14	gravel	90	6	.67	550.10	173	
				earth		100	450	18	500	16	gravel	500	8	3.43	854.73	174	
			8	wood	stone	68	50	30	233	16	gravel	228	6	.87	614.45	175	
			2	metal	earth	49	40	30	720	18	gravel	235	8	2.20	803.15	176	
			2	c'ment	earth	280			210	20	gravel	270	6	.86	743.86	177	
			1	metal	earth	1,600					gravel	20	5	.10	200.62	178	
				stone		254	64	25	25	20	gravel	64	6	.22	201.10	179	
				stone		20					stone	555	6	1.70	900.82	180	
2	16	wood	10	wood	earth	170	100	12	660	20	gravel	85	8	4.25	1,975.37	181	
			4	tile					60	16	stone	605	8	1.90	908.80	182	
1	16	pine	4	cedar	stone	100	320	20	380	16	earth	320	10	6.60	899.90	183	
			6	wood	rock	20			400	20	gravel	100	6	1.88	692.96	184	
			1	cedar	rock	18	20	20	100	16	gravel	100	7	.31	200.80	185	
			2	cedar			113	50	103	16	gravel	153	7	.47	598.45	186	
			8	wood	earth	100	500	60	640	16				2.00	706.65	187	
1	re	paired	5	stone	rock	4	245	20	260	18	gravel	296	6	.94	602.15	188	
			13	wood					1,010	16	gravel	85	10	3.15	998.61	189	
			2	cedar	rock	27			100	16	gravel	100	5	.31	602.23	190	
			6	stone	rock	320	100	10	240	16	gravel	233	7	.75	2,605.02	191	
			6	cedar	stone	48	380	16	360	18	gravel	480	7	1.50	1,000.00	192	
			3	cedar					82	20	gravel	85	5	.27	202.58	193	
									357	24	gravel	294	7	3.19	2,094.88	194	
			1	metal	stone	60			142	22	gravel	112	5	.43	199.73	195	
1	12	cedar	3	cedar					742	14	gravel	85	6	2.30	1,269.82	196	
									280	14	gravel	118	6	.87	299.60	197	
1	226	wood	1	cedar					160	14				.72	256.94	198	
			2	pine					160	14	gravel	116	6	1.85	859.62	199	
														.35	250.50	200	
				stone		29	166	16			gravel	175	8	.79	511.37	201	
1	10	pine	8	wood					1,015	18	gravel	365	10	8.25	1,508.45	202	
			6	wood	earth	170	70	20	200	20	gravel	582	5	2.00	1,050.10	203	
			2	cedar	earth	110			510	20	gravel	310	6	1.60	500.48	204	
			3	wood	earth	105			100	24	gravel	450	6	1.50	907.61	205	
			4	cedar	earth	94	320	30	480	16	gravel	480	6	1.50	800.00	206	
			4	cedar			100	12	300	16	gravel	280	6	.93	499.00	207	

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
208	McKenzie and Burpee Township roads.	20	40	20	16				
209	McMurrich Township roads.	100	45	370	18	gravel	370	6	40
210	McPherson Township roads.	55	16	150	12				10
211	McPherson and Loudon Tp. roads.	234	16	78	12	gravel	100	6	
212	Medonte Township roads.			30	22	gravel	172	8	114
213	Merritt Township roads.	720	30	540	16				
214	Methuen Township roads.								
215	Mills Township roads (Manitoulin).	200	60	160	24				
216	Mills Township roads (Parry Sound).	170	30	170	16	gravel	37	6	37
217	Minden and Stanhope Township road.								
218	Minden and Snowden Township roads.								
219	Monmouth Township roads.								
220	Monteagle and Herschel Tp. roads.								
221	Monteith Township roads.	480	26	480	20				
222	Morgan Township roads.								
223	Morrison Township road.								
224	Murchison Township roads.								
225	Murchison Tp. road to Barry's Bay	1,280	50						
226	Muskoka Township roads.								80
227	Nairn Township roads.	600	30	320	16				
228	Neelon Township roads.			180	14	earth	180	14	180
229	Nipissing Township roads.								20
230	Oakley Township roads.	125	24	125	16				
231	Olden and Oso Bdy. road.								
232	Orillia Township roads.	100	20						110
233	Oro Township roads.								
234	Oso Township roads.								
235	Palmerston Township roads.								170
236	Papineau Township roads.	40	40	45	16				100
237	Parkinson Township roads.								
238	Parkinson and Grasett Tp. roads.								
239	Patterson Township roads.								
240	Patton Township roads.	300	50	100	20				40
241	Pedley Township roads.	462	20	462	14				
242	Perry Township roads.								
243	Petewawa Township roads.								
244	Phelps Township roads.	960	40						
245	Plummer Township roads.	100	30	260	24				100
246	Plummer Add'l, etc., Township roads.	280	60	240	12				
247	Port Carling road.								
248	Prince Township roads.								12
249	Pringle Township roads.	160	60	40	20				
250	Radcliffe Township roads.								
251	Raglan Township roads.								
252	Rama Township roads.	160	30	40	26	gravel	14	6	80
253	Ratter Township roads.	78	16	78	14				
254	Ratter and Henry Township roads.	156	20	156	14	gravel	20	6	156
255	Ridout Township roads.	400	30	400	14				
256	Robinson Township roads.								30
257	Rolph, Buchanan and Wylie Tp. roads.								
258	Ross Township roads.								
259	Ryde Township roads.								

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic Yards	Side-brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			4	cedar			300	12	150	16	gravel	375	6	1.30	\$ c.	208
			3	wood	sand	69								1.15	599.00	209
			16	wood					860	14	gravel	486	6	3.22	1,600.00	210
			2	cedar					468	14	gravel	20	6	2.18	792.13	211
			4	metal	earth	3,535	20	10	143	18	gravel	141	8	1.00	2,260.00	212
			9	wood	earth	80								2.25	796.86	213
			8	cedar	stone	52			205	10	stone	203	8	.64	488.50	214
			4	wood	stone	1,206	280	20	130	24	gravel	345	7	1.69	1,682.87	215
			9	cedar					180	14	gravel	100	6	1.09	806.21	216
			4	wood	stone	90	135	8	215	16	gravel	68	6	.67	301.33	217
			3	cedar	stone	25	35	20	120	16	gravel	69	6	.43	199.87	218
			2	stone	stone	138	12	20	43	18	gravel	16	6	1.50	300.60	219
			17	cedar	earth	318	600	20	1,248	18	gravel	117	7	3.90	1,193.49	220
			16	wood	stone	25			240	16				2.25	2,001.13	221
					stone	200					gravel	500	12	1.56	425.60	222
			2	stone	stone	300			200	16	gravel	160	5	.62	502.75	223
			3	wood					480	12	gravel	15	10	1.50	499.75	224
			1	wood										4.00	1,499.12	225
			11	stone	stone	116	150	10	125	18	gravel	240	5	.75	1,000.14	226
2	12	wood	6	wood	earth	100	100	20			gravel	90	7	2.08	708.87	227
			7	cedar			50	16			gravel	160	8	1.06	452.35	228
			4	cedar			337	20	300	16	gravel	650	7	2.03	1,203.33	229
			7	cedar	rock	295	240	16	140	18	gravel	100	5	1.15	1,004.39	230
			3	tile	stone	36			127	14	gravel	83	8	.50	200.01	231
					clay	325			180	30	gravel	198	8	1.00	1,050.00	232
			3	metal	earth	4,497			539	22	gravel	606	8	2.00	1,973.18	233
			6	metal					87	14	gravel	267	8	.85	300.78	234
			17	metal	stone	100	85	40	310	18	gravel	415	8	1.30	1,270.07	235
			8	wood					1,325	12	gravel	240	7	4.50	2,112.05	236
					stone	20			190	18	gravel	170	6	.61	499.00	237
			3	wood					120	22	gravel	210	5	.65	349.87	238
			4	stone	stone	30	160	12	250	18	gravel	15	7	.80	297.09	239
			5	wood	earth	490	60	16			gravel	80	6	1.25	499.98	240
			1	cedar										1.40	798.91	241
			4	cedar			160	18	160	18	gravel	100	7	.50	296.10	242
							100	18	675	15	gravel	175	5	2.10	400.50	243
			5	wood										3.00	1,538.49	244
1	20	wood	4	cem't	stone	210			320	22	gravel	587	5	2.80	1,599.75	245
					earth	640	40	26	320	20	gravel	300	6	2.90	749.82	246
			2	cedar	stone	200					gravel	30	5	.12	500.95	247
			3	cedar	earth	1,344	240	40	140	28	gravel	135	6	.75	984.65	248
														.50	250.63	249
			5	cedar			1,150	35	1,175	20	gravel	300	6	5.55	916.37	250
			7	cedar			675	30	1,575	18	gravel	500	7	5.85	941.16	251
			3	tile	earth	3,710	20	17	259	28	gravel	374	6	1.75	2,398.55	252
			9	cedar					410	14	gravel	60	7	1.80	893.80	253
			6	cedar										.50	299.98	254
			10	stone	earth	105								1.25	500.00	255
1	10	wood	4	wood	rock	150	700	30	140	20	gravel	730	7	4.09	1,531.17	256
			1	cedar					1,900	20	gravel	200	8	6.00	708.00	257
			1	cedar							gravel	150	9	.47	200.10	258
			15	cedar	stone	50			290	16	gravel	460	5	1.70	1,001.37	259

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
260	Ryerson Township roads.....								
261	Sabine Township roads.....	800	40	150	20				
262	St. Edmunds Township roads.....	20	66	120	24	gravel	120	6	240
263	Salter Township roads.....	240	50	240	20				
264	Sandfield Township roads.....	300	24	700	20				20
265	Sebastopol Township roads.....								250
266	Shakespeare Township roads.....								
267	Shedden Township roads.....	300	60	160	17	gravel	120	6	70
268	Sheffield Township roads.....								
269	Sheguiandah Township roads.....								
270	Sherwood Township roads.....	600	28	600	22				
271	Snowden Township roads.....								
272	Snowdon and Minden Township road.....								
273	Somerville Township roads.....								
274	Spence and Monteith Township roads.....								
275	Springer Township roads.....								
276	Stafford Township roads.....								90
277	Stanhope Township road.....								
278	Stanhope, Dorset-Minden Trunk road.....	3,200	45	426	14				860
279	Stephenson Township road.....								
280	Stisted Township roads.....								
281	Striker Township roads.....								100
282	Strong Township roads.....	100	40	220	22	gravel	200	6	440
283	Sunnidale Township roads.....								
284	Tarentorous Township roads.....			840	30	gravel	36	6	216
285	Tay Township roads.....	236	66	326	36				8
286	Tehkummah Township roads.....								30
287	Thessalon Township roads.....								
288	Thompson Township roads.....								140
289	Tiny Township roads.....								24
290	Torbolton Township roads.....								
291	Tudor and Cashel Township roads.....	30	40	90	24	gravel	20	6	180
292	Vankoughnet Township roads.....	323	50	147	20				294
293	Vespra Township roads.....	120	66	30	22				43
294	Victoria Township roads.....								15
295	Waters Township roads.....	225	22	100	16				250
296	Wells Township roads.....								60
297	Westmeath Township roads.....								
298	Widdifield Township roads.....	170	40	105	20	gravel	90	10	230
299	Wilberforce Township roads.....								
300	Wollaston Township roads.....								
301	Wood Township roads.....	1,400	30						
Total.....		48,499		32,110		6,378			31,417

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic Yards	Side-brushed		Graded and Shaped		SURFACED					
							Length rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			6	cedar	earth	200	100	16	260	18	gravel	640	7	2.25	\$ c.	
			2	wood	clay	375			150	16				3.00	669.65	260
			4	wood	earth	300			160	20	gravel	160	6	.38	1,000.50	261
			6	stone	stone	285	50	20	50	20	gravel	150	8	1.25	1,106.48	262
			2	cedar			300	20	750	20	gravel	400	10	2.65	499.41	263
					rock	100			100	22	gravel	250	6	2.65	1,196.43	264
					earth	200								3.28	831.88	265
														.77	400.00	266
														.93	500.00	267
									15	14	gravel	165	8	.51	200.00	268
					rock	10	40	26	60	24	gravel	380	7	1.19	700.05	269
			1	cedar	earth	1,800	800	18	1,150	22	gravel	150	15	5.47	1,240.26	270
			4	cedar			55	30			gravel	122	6	.38	200.10	271
			3	cedar	earth	13	60	16	330	20	gravel	210	6	1.03	398.95	272
			1	metal	stone	79	36	12	159	18	gravel	386	8	1.20	800.92	273
1	14	cedar	3	cedar					20	14	gravel	500	7	1.56	421.13	274
			3	wood					120	14	gravel	303	6	1.04	757.10	275
			1	cedar	earth	230	90	50	90	28				.28	399.80	276
			1	cem'nt	stone	108	10	20	25	18				.08	300.50	277
2	12	stone	4	stone	earth	7,497								10.00	19,944.59	278
1	16	wood	3	wood	earth	100	80	16	340	16	gravel	250	5	1.06	1,000.64	279
			3	cedar	stone	118	80	20	100	16	gravel	370	5	1.15	702.75	280
					earth	150	200	14			gravel	220	5	.69	495.62	281
1	10	cedar	16	cedar					580	18	gravel	290	7	2.50	1,024.13	282
					sand	100					gravel	40	16	.14	450.00	283
			3	cem'nt	rock	28								2.62	999.95	284
														1.02	1,515.16	285
			9	wood	stone	80	380	15	380	26	gravel	1,300	7	4.06	2,299.09	286
1	40	wood	2	wood	earth	360	160	20	400	20	gravel	260	6	1.25	602.98	287
			2	wood	stone	50					gravel	465	6	1.45	703.15	288
					sand	350			285	22	gravel	222	5	1.08	649.48	289
					earth	250					gravel	250	10	.78	500.52	290
			3	stone	stone	550					stone	159	7	.78	748.31	291
1	12	cedar	4	cedar	earth	1,521	78	20	230	24	gravel	154	6	2.10	1,973.10	292
					sand	200					gravel	175	8	.93	880.00	293
					earth	100			460	20	gravel	570	6	1.80	960.46	294
2	22	stone	7	cedar	earth	1,300	30	8	50	12	gravel	305	8	2.10	1,250.10	295
			4	wood	earth	467	180	16	390	20	gravel	300	5	1.34	947.50	296
					stone	50	150	20	575	22	gravel	404	10	2.58	804.95	297
			26	wood					1,716	16	gravel	669	10	6.33	3,835.82	298
			4	tile	earth	500	1,400	15	3,640	18	gravel	2,285	10	12.72	2,905.00	299
											stone	120	8	.38	200.00	300
2	16	wood	5	stone										4.38	1,001.05	301
67			1,504			127,370	41,806		121,220			88,774		721.20	414,863.74	

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
1	Admaston, By-law No. 256	300	25	3,375	25	gravel	1,975	15
2	Abermarle, By-law No. 600					gravel	1,675	5
3	Albermarle, By-law No. 611					gravel	1,485	6
4	Alberton, By-law No. 1	166	66	506	25	gravel	1,097	6
5	Algona, North, By-law No. 25	100	40	650	18	gravel	300	8
6	Algona, South, By-law No. 82	300	20	1,500	20	gravel	500	10
7	Algona, South, By-law No. 77			1,625	14	gravel	175	8
8	Alice and Fraser, By-law No. 4	220	30	1,695	28	gravel	1,025	10
9	Armour, By-law No. 414	400	20	380	17	gravel	90	6
10	Assiginack, By-law No. 447	100	12	310	24	gravel	905	7
11	Assiginack, By-law No. 444 (grader)							
12	Atwood, By-law No. 118	696	66	287	34	gravel	429	6
13	Bagot and Blythfield, By-law No. 345	1,250	40	3,200	30	gravel	2,150	10
14	Balfour, By-law No. 67	1,120	18	8,330	33	gravel	460	8
15	Belmont, By-law No. 631	215	10	54	10	gravel	603	8
16	Billings, By-law No. 261	400	20	810	24	gravel	500	7
17	Blezard, By-law No. 136			320	33	gravel	410	10
18	Blezard, By-law No. 128	229	12	785	12	stone	366	8
19	Blue, By-law No. 61	484	66	525	28	gravel	140	6
20	Brethour, By-law No. 20 (overseer)							
21	Bromley, By-law No. 323			2,420	20	gravel	4,625	10
22	Bromley, By-law No. 309			1,700	18	gravel	1,305	8
23	Bromley, By-law No. 313 (grader)							
24	Brougham, By-law No. 721	700	20	900	20	gravel	400	7
25	Burleigh, By-law No. 1					stone	154	6
26	Burleigh, By-law No. 2 (grader)							
27	Burpee, By-law No. 121			220	24	gravel	450	7
28	Cardiff, By-law No. 608	280	20	943	18	gravel	288	6
29	Caldwell, By-law No. 308					gravel	1,325	6
30	Carling, By-law No. 134	640	16	800	20	gravel	430	6
31	Carlow, By-law No. 139	160	20	865	18	gravel	216	7
32	Carnarvon, By-law No. 351	100	12	540	22	gravel	755	7
33	Casey, By-law No. 365 (overseer)							
34	Casimir, Jennings and Appleby, By-law No. 98			915	14	gravel	624	6
35	Chamberlain, By-law No. 91	320	28	160	28			
36	Chamberlain, By-law No. 87			320	28	gravel	160	6
37	Chamberlain, By-law No. 76 (overseer)							
38	Chandos, By-law No. 70	502	40	646	10	stone	214	7
39	Chandos, By-law No. 72 (machinery)							
40	Chandos, By-law No. 59 (overseer)							
41	Chapman, By-law No. 5			865	22	gravel	990	6
42	Chapple, By-law No. 307	1,485	50	1,936	24	gravel	3,936	6
43	Conmee, By-law No. 58	614	25	680	16	gravel	174	7
44	Conmee, By-law No. 54	820	30	720	18	gravel	400	8
45	Cosby and Mason, By-law No. 62			1,594	14	gravel	503	6
46	Cosby and Mason, By-law No. 52			2,230	14	gravel	218	8
47	Crosby, South, By-law No. 899			90	16	gravel	518	8
48	Dalhousie, By-law No. 848			605	22	gravel	275	10
49	Day and Bright, By-law No. 3					gravel	8	6
50	Dilke, By-law No. 104 (overseer)							
51	Dilke, By-law No. 106	421	40	765	32	gravel	337	6
52	Draper, By-law No. 411	60	20	370	18	gravel	985	5
53	Drury, Denison and Graham, By-law No. 208			175	20	gravel	3,060	8
54	Dungannon, By-law No. 92			321	18	gravel	102	7
55	Dysart, By-law No. 665	5,035	20	2,186	22	gravel	5,471	7
56	Eldon, By-law No. 527	160	18	896	20	gravel	1,514	7

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material	18	19	20	21
10	11	12	13	14	15	16	17	18	19	20	21
								.55	10.00	\$ 1,299.87	c. 1
						2	tile		5.25	735.92	2
	rock	40							4.65	849.75	3
25	clay	191				2	tile	2.66	1.50	1,095.62	4
						1	cedar		2.15	200.00	5
						7	cedar		4.70	500.00	6
						8	cedar		5.08	499.62	7
150						2	cedar		5.30	499.97	8
			1	10	cedar	3	cedar		1.25	300.00	9
	concr't	120				4	wood	.12	2.82	1,497.90	10
										103.39	11
	clay	1,150				2	wood	2.50	.95	1,325.00	12
			1	10	wood	36	metal		10.00	2,306.83	13
90	stone	1,340	5	20	cedar	11	cedar		29.10	1,500.00	14
	stone	500				5	metal		1.88	600.00	15
						9	stone		3.75	700.00	16
	earth	3,840							2.00	300.00	17
	stone	103							2.93	375.00	18
95	earth	120				4	wood	3.16		1,063.50	19
										99.60	20
	earth	300	1	10	wood	18	wood		16.30	3,250.00	21
									5.80	2,700.00	22
										150.00	23
						3	cedar		2.81	300.00	24
									.48	200.00	25
										41.25	26
20	stone	110				8	stone		1.65	500.00	27
	stone	50				18	cedar		3.00	800.00	28
						8	metal		4.15	1,171.28	29
						8	metal	.50	2.00	600.00	30
						7	cedar		2.70	400.00	31
	stone	15	1	12	repaired	3	wood		3.08	700.00	32
										85.90	33
25						4	wood		4.00	1,700.00	34
						2	wood		1.00	250.00	35
						8	metal		1.25	500.00	36
										100.00	37
						3	cedar		2.15	200.00	38
										46.00	39
										8.80	40
	clay	175				17	cedar		3.15	500.00	41
521	clay	5,791	1	12	wood	28	wood	12.60	4.50	7,499.98	42
228	earth	200				5	wood	1.00	2.92	959.05	43
	earth	3,060	1	10	cedar	18	cedar	.25	3.50	1,000.00	44
						14	wood		5.00	562.31	45
110						10	wood		7.00	599.56	46
									1.62	399.56	47
						3	stone	.33	1.56	450.00	48
	gravel	586				1	cement	.03		290.00	49
										18.00	50
	earth	684						1.00	1.85	500.00	51
10	earth	495				67	cedar		3.30	1,249.89	52
654		1,292	3	12	cedar	13	cedar		9.56	1,474.56	53
100	earth	200				6	cedar		1.32	296.75	54
927	stone	448	3	10	cedar	94	wood	2.24	20.35	6,458.08	55
47	earth	94	4	16	cement	12	metal		4.75	2,499.54	56

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION

Number	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
57	Eldon, By-law No. 523 (overseer)							
58	Elzevir and Grimsthorpe, By-law No. 64			386	18	gravel	486	7
59	Emo, By-law No. 265	2,604	50	622	30	gravel	2,786	6
60	Evanturel, By-law No. 140	410	24	1,680	20	gravel	628	8
61	Evanturel, By-law No. 140A	320	24	160	25	gravel	80	8
62	Evanturel, By-law No. 142	140	66	140	24			
63	Faraday, By-law No. 132			474	20	gravel	410	6
64	Freeman, By-law No. 11 (grader)							
65	Gillies, By-law No. 14	1,698	40	3,374	20	gravel	531	7
66	Glackmeyer, By-law No. 17	468	30	6,700	25	gravel	1,118	12
67	Gordon and Allan, By-law No. 171			110	24	gravel	1,230	7
68	Gordon and Allan, By-law No. 169 (grader)							
69	Hanmer, By-law No. 114	169	24	2,400	33	gravel	1,747	6
70	Harris, By-law No. 73	80	15	160	28	gravel	225	7
71	Harris, By-law No. 70			240	24	gravel	185	6
72	Harvey, By-law No. 380	81	40	61	20	gravel	96	8
73	Harvey, By-law No. 375	389	20	927	12	gravel	2,116	8
74	Hilton, By-law No. 414	164	17	280	24	gravel	772	6
75	Himsworth, South, By-law No. 79B	80	16	1,310	22	gravel	1,440	5
76	Hinchinbrooke, By-law No. 4	35	20	420	16	gravel	2,110	8
77	Hinchinbrooke, By-law No. 8			400	16	gravel	850	8
78	Howland, By-law No. 178			350	12	gravel	1,220	8
79	Hudson, By-law No. 92			160	22	gravel	1,310	6
80	Humphrey, By-law No. 376	20	20	96	16	gravel	61	7
81	Hungerford, By-law No. 262			120	20	gravel	334	6
82	Huntingdon, By-law No. 446	20	10	160	20	gravel	285	6
83	Jaffray and Melick, By-law No. 116	560	40	480	24	gravel	560	16
84	Jocelyn, By-law No. 315			215	20	gravel	560	6
85	Johnson, By-law No. A-110			170	22	gravel	435	6
86	Kerns, By-law No. 192			105	30	gravel	1,294	6
87	Laird, By-law No. 138			100	22	gravel	915	6
88	Lavallee, By-law No. 232	743	66	2,219	26	gravel	1,997	6
89	Lavallee, By-law No. 226 (overseer)							
90	Limerick, By-law No. 1			62	20	gravel	62	7
91	Lindsay, By-law No. 335			125	16	stone	1,157	6
92	Loughboro, By-law No. 163A			70	16	stone	650	8
93	Loughboro, By-law No. 120A			760	16	stone	1,350	8
94	Macaulay, By-law No. 88	480	16	690	18	earth	350	5
95	Machar, By-law No. 585	128	12	565	18	gravel	511	8
96	Madoc, By-law No. 56			673	20	gravel	888	6
97	Mara, By-law No. 592	520	21	1,795	26	stone	511	6
98	Marmora and Lake, By-law No. 564			279	20	gravel	541	5
99	Martland, By-law No. 153	40	16	334	14	gravel	471	6
100	Matchedash, By-law No. 216	27	12	53	18	gravel	1,066	8
101	Mayo, By-law No. 256	60	25	395	18	gravel	296	8
102	McDonald, etc., By-law No. 160	100	35	270	20	gravel	925	6
103	McDougall, By-law No. 187	2,000	8	524	16	gravel	2,415	8
104	McMurrich, By-law No. 289	696	12	936	16	gravel	528	7
105	McIrvine, By-law No. 243					gravel	480	6
106	McIrvine, By-law No. 233	88	66	360	24	gravel	50	5
107	McKim, By-law No. 190			1,120	18	gravel	1,120	8
108	McLean, By-law No. 465	300	30	609	18	gravel	1,003	5
109	Medonte, By-law No. 588	57	24	78	22	gravel	506	8
110	Medonte, By-law No. 581			649	22	gravel	1,615	7
111	Medora and Wood, By-law No. 374	850	16	925	18	gravel	751	5
112	Medora and Wood, By-law No. 368 (machinery)							

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.—*Continued.*

DITCHED		CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods		Material	Amount in cubic yards	Number	Span, feet	Material	Number	Mrterial				
10	11	12	13	14	15	16	16					
		earth	200				4 cedar		1.53		56.00	57
140		earth					9 wood	9.12	7.10		499.87	58
42		earth	400	1	12	wood	4 wood	1.06	5.00		3,671.23	59
320									1.00		2,978.30	60
200		stone	420				2 wood	.44			150.00	61
							6 cedar		1.48		299.93	62
											449.96	63
											94.25	64
159		earth	3,120	1	18	wood	36 metal	2.30	10.60		1,450.57	65
309		earth	900	1	85	rep'd	12 tamarac		21.80		1,999.08	66
		stone	20				5 cedar		3.85		1,249.91	67
											103.26	68
							31 wood		7.50		724.92	69
							1 cement		1.23		499.21	70
100		stone	40				4 cedar		1.50		548.80	71
							1 stone	31			150.00	72
264							11 metal		7.75		683.32	73
		stone	55				1 wood		2.66		643.12	74
							6 cedar	3.00	2.60		835.00	75
							12 tile		6.20		1,743.42	76
240		stone	130				14 metal		3.50		1,500.00	77
		rock	180				16 wood		3.77		1,100.00	78
							2 cedar		4.24		400.00	79
		rock	40				6 stone		.30		200.00	80
		rock	3,332				1 cedar		1.10		690.90	81
							5 metal		1.00		299.55	82
240		earth	1,010				26 cedar	1.25	1.50		1,333.34	83
110		earth	560				6 wood		1.75		600.00	84
							2 wood		1.36		400.00	85
160		earth	1,928	5	20	wood	12 wood		4.37		1,328.55	86
		earth	178				1 cement		2.86		999.77	87
93		earth	526	1	16	wood	11 wood	7.72	2.60		3,125.00	88
											86.40	89
124		stone	898				1 stone	.19			250.00	90
		stone	150				12 wood		3.62		1,096.00	91
									2.03		811.27	92
		earth	705				9 tile		4.22		1,459.12	93
100		earth	2,573	1	10	wood	27 cedar		3.48		1,000.00	94
		earth	70				8 wood		1.89		584.25	95
							9 metal		2.77		800.00	96
		earth	942				2 cement		5.60		1,419.38	97
151							5 cedar		1.95		774.96	98
54		stone	38				33 wood	.26	1.46		1,006.96	99
		earth	349				6 metal	.08	3.33		752.61	100
		earth	80				8 cedar		1.54		399.40	101
25		stone	500	2	40	wood	1 tile	.31	2.90		923.52	102
2				1	12	wood	37 cedar		8.65		3,200.00	103
							17 cedar		2.92		400.00	104
									1.50		500.00	105
168							3 wood	3.76	.78		500.00	106
				3	12	wood			5.00		1,500.00	107
		earth	580	1	20	wood	15 cedar	.13	3.88		1,998.37	108
80		stone	2,150				13 metal		1.64		1,500.00	109
79		earth	1,924				6 metal		5.34		1,199.90	110
		earth	2,679				66 cedar		3.84		3,500.00	111
											296.56	112

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
113	Minden, By-law No. 365	441	16	1,475	14	gravel	533	6
114	Minden, By-law No. 344	798	16	2,145	16	gravel	487	6
115	Monck, By-law No. 486	15	30	945	18	gravel	400	5
116	Monmouth, By-law No. 256	703	16	1,390	16	gravel	232	6
117	Monmouth, By-law No. 265 (overseer)							
118	Monteagle and Herschel, By-law No. 526	459	20	885	20	gravel	160	7
119	Morley and Pattullo, By-law No. 242	900	66	1,830	28	gravel	1,253	6
120	Muskoka, By-law No. 302	630	16	365	18	gravel	605	5
121	Nairn, By-law No. 132	120	40	120	28	gravel	20	7
122	Neebing, By-law No. 406	3,110	50	3,286	24	gravel	2,476	8
123	Neelon and Garson, By-law No. 156			720	16	gravel	1,780	8
124	Nipigon, By-law No. 203	1,362	20	1,482	20	gravel	338	7
125	Nipigon, By-law No. 204 (machinery)							
126	Oakley, By-law No. 213	50	16	240	18	gravel	110	5
127	O'Connor, By-law No. 200	1,345	20	1,990	20	gravel	330	7
128	Olden, By-law No. 65-B	340	30	900	16	gravel	1,700	8
129	Olden, By-law No. 62B (overseer)							
130	Oliver, By-law No. 200	1,085	16	1,180	24	gravel	1,316	7
131	Orillia, By-law No. 1118			974	18	gravel	1,457	8
132	Orillia, By-law No. 1001			671	22	stone	1,797	6
133	Oro, By-law No. 468	55	20	697	22	gravel	1,019	10
134	Oso, By-law No. 181	60	30	210	16	gravel	2,200	8
135	Oso, By-law No. 173			451	12	gravel	1,014	8
136	Paipoonage, By-law No. 185	140	66	1,460	24	gravel	3,521	7
137	Palmerston, By-law No. 256	70	30	310	16	gravel	1,615	8
138	Palmerston, By-law No. 250	310	20	566	14	gravel	2,612	8
139	Palmerston, By-law No. 257 (overseer)							
140	Perry, By-law No. 164	324	40	1,220	18	gravel	280	8
141	Plummer, additional By-law No. 175	320	20	595	20	gravel	1,721	6
142	Prince, By-law No. 89	40	10	360	30	gravel	758	6
143	Rama, By-law No. 397	615	27	81	22	stone	247	6
144	Ratter and Dunnet, By-law No. 34	52	16	585	14	gravel	811	6
145	Ratter and Dunnet, By-law No. 32 (overseer)							
146	Ratter and Dunnet, By-law No. 29	182	16	684	14	gravel	1,350	6
147	Rayside, By-law No. 263	80	12	7,700	33	gravel	1,770	10
148	Rayside, By-law No. 251 (overseer)							
149	Rayside, By-law No. 246	640	25	8,360	16	gravel	540	12
150	Rear of Yonge, By-law No. 604							
151	Ridout, By-law No. 48	560	16	140	18	gravel	825	5
152	Ridout, By-law No. 44	700	16	1,600	18	gravel	2,680	5
153	Ross, By-law No. 380			1,165	12	gravel	1,910	8
154	Ryerson, By-law No. 469	125	10	40	20	gravel	140	8
155	St. Edmunds, By-law No. 273					gravel	509	6
156	St. Joseph, By-law No. 454			648	22	gravel	1,388	7
157	Sandfield, By-law No. 256			50	24	gravel	305	7
158	Sandfield, By-law No. 257 (grader)							
159	Sarawak, By-law No. 8			245	22	stone	1,027	7
160	Sheffield, By-law No. 625			90	16	gravel	1,428	8
161	Sherwood, By-law No. 20	1,475	25	870	15	gravel	100	10
162	Sherborne, By-law No. 290	220	18	2,044	18	gravel	572	6
163	Sherborne, By-law No. 296	137	24	296	18	gravel	408	6
164	Shuniah, By-law No. 460	3,131	40	2,000	20	gravel	5,095	7
165	Snowdon, By-law No. 216	663	16	1,108	16	gravel	567	6
166	Snowdon, By-law No. 209	420	20	663	16	gravel	309	6
167	Somerville, By-law No. 740	266	30	931	18	stone	1,046	6
168	Springer, By-law No. 321			1,540	14	gravel	515	6

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURES	NUMBER
	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
.....	stone	38	.....	.....	.....	31	cedar	.....	4.60	1,200.00	113
6	earth	670	1	15	wood	32	cedar	.....	6.73	1,200.00	114
.....	.....	.....	1	16	wood	20	cedar	.05	3.15	1,719.35	115
.....	.....	.....	.....	.....	.....	20	cedar	.31	5.00	800.00	116
.....	.....	.....	.....	.....	.....	.....	.....	.....	61.20	.....	117
.....	earth	566	.....	.....	.....	18	cedar	.....	3.07	748.45	118
118	earth	230	.....	.....	.....	5	metal	4.85	8.65	2,218.02	119
22	earth	185	2	26	wood	21	wood	.....	3.04	999.98	120
.....	earth	40	.....	.....	.....	.....	.....	.....	27.00	199.55	121
592	clay	1,400	1	30	wood	39	wood	8.71	8.39	7,013.87	122
160	.....	.....	2	12	cedar	14	cedar	.....	6.81	1,000.00	123
18	.....	.....	.....	.....	.....	5	cedar	2.26	3.00	1,400.00	124
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100.00	125
30	rock	61	.....	.....	.....	18	cedar	.....	.78	299.96	126
80	clay	2,900	2	16	wood	31	cedar	2.68	4.16	1,970.80	127
.....	.....	.....	.....	.....	.....	27	metal	.....	5.31	1,250.00	128
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78.00	129
64	clay	480	.....	.....	.....	7	cedar	.....	6.68	2,365.75	130
260	stone	179	.....	.....	.....	1	metal	.....	6.13	2,100.00	131
30	clay	694	.....	.....	.....	1	cement	.....	5.90	2,083.25	132
81	gravel	702	1	repa	ired	13	wood	.....	3.21	1,498.42	133
.....	stone	70	.....	.....	.....	7	metal	.....	6.87	1,600.00	134
.....	stone	60	.....	.....	.....	27	metal	.....	3.57	1,400.00	135
168	earth	500	.....	.....	.....	13	cedar	2.50	12.08	4,487.61	136
.....	.....	.....	.....	.....	.....	16	cedar	.....	5.05	1,500.00	137
.....	.....	.....	.....	.....	.....	15	stone	.....	8.35	1,300.00	138
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60.00	139
.....	.....	.....	.....	.....	.....	8	cedar	1.31	3.00	500.00	140
.....	.....	.....	2	repa	ired	15	wood	.25	5.30	1,450.00	141
470	earth	104	1	12	wood	4	wood	.....	2.37	584.15	142
.....	.....	.....	.....	.....	.....	2	metal	.....	2.09	600.00	143
686	earth	25	.....	.....	.....	29	cedar	.....	2.77	1,250.00	144
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	89.00	145
925	.....	.....	1	10	cedar	30	cedar	.....	4.44	1,250.00	146
110	stone	50	1	10	cedar	78	cedar	.....	24.40	2,165.56	147
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80.00	148
1,090	earth	3,020	2	12	cedar	50	cedar	.....	28.00	2,318.28	149
.....	stone	398	.....	.....	.....	.....	.....	.....	.....	400.00	150
.....	stone	713	.....	.....	.....	22	cedar	.....	3.10	1,000.00	151
.....	earth	440	.....	.....	.....	20	cedar	.....	8.40	2,500.00	152
.....	.....	.....	1	10	cedar	5	cedar	.....	6.20	1,500.00	153
125	.....	.....	.....	.....	.....	3	cedar	.43	.....	450.00	154
.....	.....	.....	.....	.....	.....	2	cedar	.....	1.59	500.00	155
180	earth	330	.....	.....	.....	6	wood	.....	4.93	1,600.00	156
.....	rock	52	2	15	cedar	4	wood	.....	.98	400.00	157
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	96.75	158
123	rock	614	.....	.....	.....	3	cement	.....	3.30	1,000.00	159
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.45	1,000.00	160
.....	.....	.....	.....	.....	.....	5	cedar	.....	5.84	700.00	161
.....	rock	200	.....	.....	.....	11	cedar	.....	6.65	800.00	162
.....	stone	35	.....	.....	.....	22	cedar	.....	1.28	500.00	163
882	earth	100	6	18	cedar	55	wood	2.09	20.25	7,803.25	164
.....	.....	.....	3	16	wood	33	cedar	.....	3.51	999.97	165
.....	earth	58	1	16	cedar	23	wood	.....	2.35	790.82	166
.....	earth	346	.....	.....	.....	12	cedar	.....	4.55	1,500.00	167
.....	.....	.....	.....	.....	.....	.....	.....	.....	6.35	895.19	168

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
169	Stafford, By-law No. 719.....			2,150	20	gravel	1,475	10
170	Stanhope, By-law No. 378.....	332	20	830	16	gravel	290	6
171	Stisted, By-law No. 265.....			200	18	gravel	381	5
172	Stisted, By-law No. 255.....	80	16	240	18	gravel	410	5
173	Storrington, By-law No. 499.....			40	16	stone	1,127	8
174	Strong, By-law No. 434.....	480	35	260	16	gravel	330	7
175	Strong, By-law No. 623.....	150	40	230	22	gravel	120	6
176	Sunnidale, By-law No. 506.....			736	24	gravel	634	9
177	Sunnidale, By-law No. 497.....			329	22	gravel	1,425	6
178	Tarbutt and Tarbutt, additional By-law No.6-A.....					gravel	791	6
179	Tarentorus, By-law No. 217.....	81	40	2,305	28	gravel	323	6
180	Tay, By-law No. 813.....	30	20	914	24	gravel	1,366	8
181	Tay, By-law No. 798.....	51	24	724	22	gravel	1,709	6
182	Thessalon, By-law No. 11.....	60	20	160	20	gravel	210	6
183	Tiny, By-law No. 639.....			324	20	gravel	881	8
184	Tiny, By-law No. 620.....			661	22	gravel	860	6
185	Tisdale, By-law No. 235.....					gravel	593	12
186	Tisdale, By-law No. 237.....					gravel	652	9
187	Tudor and Cashel, By-law No. 5.....	235	20	2,081	18	stone	301	7
188	Tudor and Cashel, By-law No. 12 (grader).....							
189	Vespra, By-law No. 643.....			306	22	gravel	1,863	8
190	Watt, By-law No. 550.....	90	12	770	18	gravel	1,785	5
191	Watt, By-law No. 545.....	300	16	1,750	18	gravel	2,230	6
192	Westmeath, By-law No. 292.....	950	20	3,800	25	gravel	2,860	10
193	Westmeath, By-law No. 298 (grader).....							
194	Whitney, By-law No. 191.....	231	40	231	24	gravel	862	10
195	Widdifield, By-law No. 323.....	645	16	375	24	gravel	2,170	10
196	Wilberforce, By-law No. 507.....	600	20	3,065	18	gravel	1,625	10
197	Wilberforce, By-law No. 494.....	375	20	4,105	18	gravel	2,340	8
198	Wollaston, By-law No. 1.....	1,146	20	1,427	18	stone	323	7
199	Worthington, By-law No. 113.....	367	66	660	28	gravel	118	6
	Total.....	58,761		169,505			170,147	

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
						4	cedar		6.72	950.00	169
						24	cedar		2.60	622.15	170
	rock	130				12	cedar		1.53	450.00	171
						14	wood		1.28	550.00	172
									3.54	1,050.00	173
450	earth	100				14	cedar	1.47	.53	573.81	174
20			1	11	cedar	6	cedar	.47	.48	542.00	175
24	earth	1,030				9	cement	10	3.28	2,468.35	176
62	clay	378				1	wood		4.38	1,000.00	177
						2	wood		2.47	497.87	178
839	rock	151	2	14	wood	24	metal		8.00	771.20	179
71	stone	563				14	metal		4.59	1,998.87	180
70	earth	1,810				4	metal	.16	6.00	1,874.95	181
	stone	540	1	11	cement	3	wood		1.00	450.00	182
43	clay	1,570	6	repaired		5	metal		2.90	1,500.00	183
94	earth	620				6	metal		3.76	1,496.97	184
									1.83	2,250.00	185
									2.03	762.87	186
	earth	955				6	cedar	.13	6.39	748.20	187
										42.97	188
7	stone	20				5	metal		5.88	2,099.19	189
	earth	511	2	19	cedar	30	wood	.06	5.58	2,000.00	190
	rock	50				73	cedar		7.39	1,985.25	191
			1	12	cedar	3	cedar		13.82	1,899.35	192
										137.77	193
35			1	44	wood	6	metal	.72	2.69	1,485.70	194
800	stone	661				17	wood	.13	7.40	1,500.00	195
						3	cedar		9.47	1,000.00	196
						5	cedar		12.83	1,750.00	197
	earth	1,250				12	cedar		6.57	890.48	198
						2	wood	1.74	2.90	800.00	199
14,897		73,180	82			2,126		87.29	808.19	222,610.55	

MISCELLANEOUS.

Inspection of Roads and Bridges.....	\$18,956.67
Engineering, Surveying and Locating Roads.....	9,008.87
Road Machinery.....	3,251.32
Compensation for Workmen injured.....	863.97
Storage of Machinery and Tools.....	141.45
Balances Road Accounts, 1921.....	1,296.91
Parke Township Accountable.....	190.00
Southworth Township, C.P.R. Right-of-Way (Rental).....	1.00

\$33,710.10

No.	RECAPITULATION	Cleared and Stumped	Graded and Shaped	Surfaced	Ditched	Cut and Fill	Bridges	Culverts	New Road	Old Road	EXPENDI- TURE
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles	
1	Direct Grants.....	90,305	153,330	95,152	31,417	127,370	67	1,504	171.92	549.28	\$ ^{c.} \$414,863.74 1
2	By-law Grants.....	58,761	169,505	170,147	14,897	73,180	82	2,126	87.29	808.19	222,610.55 2
3	Miscellaneous.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33,710.19 3
	Total.....	149,066	322,835	265,299	46,314	200,550	149	3,630	259.21	1,357.47	\$671,184.48

Appendix No. 47.

TORONTO, ONT., Oct. 31st, A.D. 1922.

To the Honourable Beniah Bowman, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit to you the report on the construction and maintenance of highways and bridges, under the provisions of the Northern and Northwestern Ontario Development Act, 1912, and amendments during the season ending 31st October, 1922.

The rapidly increasing volume of traffic on the trunk roads under the jurisdiction of the Northern Development Branch called for a large expenditure during the past year, and "Maintenance Patrols" have been established on all the principal roads. These "patrols" have proven to be very satisfactory and, well organized, they are executing a maximum amount of road work at a minimum expense.

Where a trunk road requires attention beyond the powers of the maintenance patrol, construction parties have been organized, either on a contract basis or by day labour, and in this way the efficiency of the patrol has not been impaired.



Severn to North Bay road widening.

The road from Severn to North Bay, for example, was maintained in good condition, but widening, grading, and surfacing being necessary at certain points, as between Severn and Gravenhurst and between Gravenhurst and Bracebridge, this was looked after by construction parties, without interference with the maintenance arrangements.

Branching from the foregoing, the Gravenhurst-Bala-Parry Sound, Huntsville-Dwight, Burks Falls-Magnetawan, Sundridge-Magnetawan, Trout Creek-Loring, Powassan-Loring and Powassan-Chisholm Roads, were taken care of by both maintenance and construction parties as well as the road from Parry

Sound northerly in the direction of Magnetawan, and the expenditure in the Districts of Muskoka and Parry Sound was practically all on the roads referred to.

Work on the Pembroke-Sault Ste. Marie Road was better organized than ever before, the maintenance patrols performing effective work, while the construction parties on the gap between Mattawa and Chalk River opened up approximately fourteen miles which makes it very probable that during the season of 1923 the gap will be removed and the road graded all the way. Extensive betterments and improvements were made on the sections between North Bay and Sudbury and between Sudbury and Sault Ste. Marie, the whole road being maintained in very fair condition.

Surveys were commenced in the fall with a view to the location of a road to connect Temiskaming District with the roads in Southern Ontario and the survey parties are still engaged on the work.

The work on the Latchford-Cochrane Trunk Road, progressed very satisfactorily, the section connecting Swastika, and the Kirkland Lake gold area



International Highway, Thunder Bay District.

with the Cobalt silver camp being advanced so near completion that it will only be a short time until vehicular traffic can move over the entire road without difficulty. Seven miles of the previously unopened portion lying immediately south of Cochrane was cut out, and many miles of gravelling done on the already opened portions.

On the Porquis Junction-Timmins Road, a distance of about three miles was cut out and about six miles graded, and the heavily travelled section between South Porcupine and Timmins was maintained in fair condition and considerably improved.

In addition to the foregoing the following roads in the Temiskaming District, received considerable attention:—North Cobalt to South Lorrain, Milberta to Elk Lake, Elk Lake to Gowganda, Englehart to Charlton and Elk Lake, Swastika to Kirkland Lake and extension into Lebel and Gauthier townships, Dane to Larder Lake, Boston Creek to Skead Township, Boston Creek to Round Lake, Kirkland Lake to Goodfish, Lightning River Road through townships



Grading new road, Northern Ontario.



McKenzie River Bridge, Northern Ontario.

of Munro, Michaud, and McCool, Matachewan Road, Munro Road, Matheson-Shillington Road, Monteith-Shillington Road and Porquis Junction-Iroquois Falls Road.

In the Thunder Bay District the policy inaugurated the previous year was again followed with success and the principal roads then mentioned were maintained in good condition. The Eastern Highway between Port Arthur and Nepigon was further cut out a distance of nearly six miles.

The leading roads in Kenora and Dryden Districts were well taken care of, the principal work being the cutting out of a road from Keewatin to the Manitoba boundary, a distance of over thirty miles, and the cutting out of the road to Redditt, a distance of over ten miles.

The expenditure in the Rainy River District was mainly taken up by betterments and improvements on the Trunk Road, Fort Frances to Rainy River and the main roads leading to it. There was, of course, the systematic maintenance of the roads, and extensions to the leading roads referred to so as to reach outlying settlers.

The Consolidated School Routes were given special attention, and the co-operation of this branch has assisted materially in the success of this system.

In conclusion last year I referred to the increase of expenditures on road drainage and I would now point out that this increase—again in evidence this year—is already showing a marked improvement in the condition of the roads.

All of which is respectfully submitted. I have the honour to be, sir,

Your obedient servant,

C. H. FULLERTON,
Director, Northern Development Branch.



Motor truck with fire-fighting equipment and hose reel.



Rangers' cabins.

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L ft.	W & D	L mfs.	Yards used
	ALGOMA DISTRICT.														
	<i>Trunk Road, Sudbury to Sault Ste. Marie.</i>														
1	Sault Ste. Marie to Day Mills, Section I											58200	clean'd	66	9669
2	Day Mills to Cutler... Section II.	.25 22.0	66 si	.25 de	66 brus	.25 he	40 d	.25 30				1200	3x1	51	4672
3	Cutler to Copper Cliff Section III.	11.0	do					7.75	30			2410 500 900 400	3x2 3x1½ 3x2½ 2x1½	78	6991
4	Bet. Webbwood and Massey.....	1.0	20					3.75	34			1450 1200 1200	2x1½ 2x2 3x2		
5	Victoria Mine Diver- sion.....	1.0	66	1.0	66	1.0	33	1.5	30			250	2½x1½	1.5	1480
6	Garden River Indian Reserve.....							3.5	36						
7	At Ladouceur Creek.														
8	At Harmon Creek.														
9	At Naughton.....														
10	Goudreau Mine Rd..	4.0	50	4.0	50	3.5 1.5	30 25	3.0 1.5	20 re	.23	20	2600 1500 1515	3x2 5x3 3x1	5.0	2300
11	Lorne-Louise Rd....					1.0	33	1.5	18			2178	2½x1½	1.5	1335
	<i>St. Joseph's Island & Campement D'Ours.</i>														
12	General Maintenance	2.5	s.	brushe	d	1.0	8	2.25	26			170 2828 800 420	2x15 3x1½ 3½x1½ 2x2	4.0	1572
13	Richards Landing, Hilton.....	.75		do				1.5	26			330	2x1	1.5	301
14	"A" Line.....											6600 1650	4x2 2½x1¼	3	435
15	"W" Line & Trainor's Side Road.....	1.0		do								1320	2x2	.66	219
16	"C" Line, west of Richards Landing..	2.0		do								1320	3x2½	.5	263
17	"PV" Line & 5th Side Road.....	2.5		do				1.25	24			200	2x1	1.25	113
18	Pine Island Ferry Rd.	1.88	66	.75	66	1.88	33	1.75	30			228 3552	3x2½ 3x2		

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	ALGOMA DISTRICT.— <i>Continued.</i> <i>Manitoulin Island.</i>														
19	Gore Bay-Silverwater- Meldrum Bay Rd..	3.0 2.25	66 60	2.0 2.25	66 60	3.5	30 ..	4.83 3.5	30 24	.....	.....	300	3x2	8.63	5043
20	Gore Bay-Kagawong Road.....							1.44	24	.....	.....	1760	3x2	.....	.....
21	Gore Bay-Providence Bay-Road	.13 4.75 1.25 .25	66 60 s. 10	3.25 brushed .25	60 10	1.25 1.13 1.88 .25	35 30 40 10	..... 11.13 .5 2.0	..... 30 34 26	.....	.....	165 2200	2x2 4x1½	8.75	7690
22	Providence Bay- Mindemoya Rd....	.06	60	.....	.....	.....	.....	6.50	30	.....	.....	.....	.....	7.25	3928
23	West Bay- Sheguindah Rd....	.5	60	.....	.....	.....	.....	.25	30	.....	.....	.....	.....	.25	150
24	Manitowaning-Little Current.....	.63 1.5	12 66	..... 1.5	..... 66	.63 1.5	20 30	2.0 5.18	12 30	.....	.....	.....	.....	10.25	7857
25	Little Current-West Bay.....	.5	s.	brushi ng	.....	.....	.....	.5	30	.....	.....	.....	.....	2.5	1415
26	Gore Bay-Barrie Is...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	250
27	Mindemoya-West Bay.....	2.0	s.	brushi ng	.....	.25	40	.5	26	.....	.....	.....	.....	2.33	1656
28	Manitowaning- Mindemoya.....	1.0 2.5	66 60	..........	..........	.25 .56 1.25	30 24 28	1.63 .25 .5	24 28 30	.....	.....	.....	.....	8.75	6473
29	West Bay-Kagawong.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	567
	COCHRANE DIST.														
30	Brower Township....	3.7 2.0	66 s.	3.7 brushi .5	66 ng 24	1.0	24	.23	33	.04	10	1341	3½x3½	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cover- ed			Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	33	.....	2	.....	.....	4x1 $\frac{1}{2}$	.....	.....	200 c.yd. earth fill.	19
.....	1	.....	.....	6x2	.....	.....	140 c.yd. earth fill.	.....
.....	7	.....	.....	3x2	.....	.....	.....	.....
.....	1	.....	.....	3x1 $\frac{1}{2}$	.....	.....	.....	.....
.....	1	.....	.....	2x1 $\frac{1}{2}$	.....	.....	.....	.....
.....	1	.....	.....	4x2 $\frac{1}{2}$	.....	.....	.....	.....
.....	3	.....	.....	6x3	.....	.....	.....	.....
.....	1	.....	.....	2x1	.....	.....	.....	.....
.....	4	.....	.....	4x3	.....	.....	.....	.....
1363	.88	3	.....	1	repaired	.....	.....	.....	.....	.....	20
.....	1	.....	.....	9x2	.....	.....	.....	.....
2794	2.0	3	.....	1	.....	.....	6x3	1	Repaired.	1230 c.yd. earth fill.	21
.....	3 $\frac{1}{2}$	.....	5	.....	.....	3x2	.....	.....	730 c.yd. stone fill.	.....
.....	11 $\frac{1}{2}$	.....	2	.....	.....	5x2	.....	.....	800 c.yd. earth and stone fill.	.....
.....	1	.....	.....	10x2	.....	.....	.....	.....
.....	1	.....	.....	5x9	.....	.....	.....	22
.....	1	.....	.....	3x3	.....	.....	.....	.....
.....	1	.....	.....	4x4	.....	.....	.....	.....
.....	1	.....	.....	4x3	.....	.....	.....	.....
.....	1	.....	1	24'	.....	.....	.....	.....
.....	1	.....	.....	4'x4'	.....	.....	150 c.yd. stone fill.	23
.....	1	.....	1	.....	.....	6x2	.....	.....	500 c.yd. earth fill.	24
.....	1	.....	.....	6x3	.....	.....	.....	.....
.....	2	.....	.....	2x1	.....	.....	.....	.....
.....	2	.....	2x1	.....	.....	.....	.....
.....	1	.....	1x1	.....	.....	.....	.....
.....	2	.....	.....	4x2	.....	.....	.....	.....
.....	2	.....	.....	4x3	.....	.....	.....	.....
.....	1	.....	.....	4x4	.....	.....	.....	.....
.....	4	.....	1	.....	.....	4x2	.....	.....	.....	25
.....	1	.....	.....	4x1	.....	.....	.....	.....
.....	1	.....	.....	6x2	.....	.....	.....	.....
.....	1	.....	.....	7x5	.....	.....	.....	.....
.....	2	repaired	.....	.....	.....	.....	.....	26
.....	2	.....	2x1	.....	.....	.....	27
.....	1	.....	6x2	.....	.....	.....	.....
.....	4	.....	2	.....	.....	3x1 $\frac{1}{2}$	.....	.....	50 c.yd. stone fill.	28
.....	2	.....	.....	2x2 $\frac{1}{2}$	.....	.....	.....	.....
.....	3	.....	.....	2x1 $\frac{1}{2}$	.....	.....	.....	.....
.....	1	.....	1x1 $\frac{1}{2}$	.....	.....	.....	.....
.....	1	.....	.....	4x4	.....	.....	.....	.....
.....	.75	.....	.....	2	.....	.....	10x3	.....	.....	.....	29
.....
.....	3	.....	.....	2x2x20	.....	.....	1 mile clay covered with 42 c.yd.	30

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	COCHRANE DISTRICT. —Continued.														
31	Calder Township....	4.13 1.13 .92	s. do 66	brushi ng .35 66		.34 .5 1.02	6 8 24	3.10 .7	24 24	.1	16	990 1800 4356 7128 330	clean'd 5x3 3x2 3½x2 5x2½		
32	Clergue Township....	1.	66			1.7	24	.7	24			3700	3½x2		
33	Clute Township.....	3.0 1.23	66 s.	3.0 brushed .64 24	66 24	3.64	24	3.0	30			19030 300 380 1000 680 695	3½x2 cleaned 5x2½ 3x1½ 4x2 6x3	1.88	1300
34	Township of Fournier	3.38	66	5.38	66	3.25	24								
35	Fox Township.....	2.5 .23	66 66	4.5 2.5 .23	66 24 56	2.5 .23	24 24					22790	3½x2		
36	Kennedy Township..	.75 .47 .17	66 40 20	.75 .47 .17	66 40 20	.75 .47	24 30	.5	24			2500 1500	3½x2 3x2	3	2554
37	Lamarche Township.			1.0	66			.04	24			225 1037	3½x2 4x3	.87	610
38	Leitch Township....	2.43	66	.5 1.30	24 66	2.14	24	.75	24	.06	18	2640	3½x2		
39	McCart Township....	2.5	66	2.5	66	1.0	24								
40	Pyne Township.....	7.0	66	.5 7.0	24 66	.5	24					1900 2540	5½x4 3½x2		
	Township Boundary Lines.														
41	Blount-Glackmeyer, Lots 19-28 inclusive	2.25	42	2.25	42			2.5 .5 .25	24 33 26			305 880 500 75 125 92 225 50 100 435 1320	2½x1½ 2½x2 3x2½ 3x1½ 3x1¾ 6x3 4x2½ 4x2 2x2 3x2 5x3		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
			.75	3			4x3x16	1	16' span.	150 c.yd. earth fill.	31
				1			3x3x16				
				6			2x2x16				
				2			4x3x16				
				3			4x2x16				
				1			6x2½x16				
				2			4x2½x16				
				2			3x2x16	1	Repaired.		
				4			1½x1½x18	1	12x5x16	240 c.yd. clay cut.	32
				1			4x4x16	1	Repaired.	180 c.yd. clay fill.	
				5			4x4x20				
				4			3x3x20				
				1			2x1½x16	1	20x16	2237 c.yd. earth cut and	33
				1			2x2x16	1	Repaired.	fill.	
				1			5x4x22				
				2			4x3x20				
				1			5x4x23				
				3			5x4x32				
				2			5x5x32				
				2			4x2x20				
				7			repaired				
				3			6x16	1	30x14	Ferry built and installed	34
				3			4x16	1	20x16	175 c.yd. earth fill.	35
				1			5x16				
				1			6x2x16				
				1			7x16				
				1			12x16				
				3			2x16				
				1			4x16				
				1			4x4x28	1	16x35	900' creek cleared 30'	36
				1			5x5x28			wide.	
				1			4x4x20			750 c.yd. earth fill.	
				1			5x5x40				
				1			5x5x20				
								3	Repaired.	50 c.yd. earth fill.	37
			1					1	34x18x5		38
								1	20x18x5		
											39
											40
				11			2x2x18	2	Repaired.	300 c.yd. earth excav.	41
				1			2x1½x18			1500 1 ft. road clay	
				4			3x3x18			covered.	
				2			6x3x25				

DEPARTMENT OF LANDS AND FORESTS,
ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
COCHRANE DISTRICT. —Continued.															
42	Blount-Leitch, Cons. 1 to 6 inclusive	2.25	33	2.25	33	.....		4.5	24	.....		6650	3x2	.....
		2.25	21	2.25	21	.....				.....		600	6½x3	.....
43	Brower-Kennedy, Lot 5 . . . . .					.....				.....
44	Brower and Lamarche Cons. 5 and 6 . . . .	.43	33	.43	33	.....		.43	24	.....		2361	3½x1½	.....
								.45	30	.....		561	6x3	.....
										.....		770	5x2	.....
										.....		2256	3½x2	.....
										.....		436	4x4	.....
45	Calvert - Teefy, Cons. 1, 2, and 3.	3. 0	66	3. 0	66	3. 0	24	.5	24	.....		2640	3½x2	.....
46	Clute - Fournier, Lots 1 to 16 inclusive. . .									.....				3.42	2559
47	Clute-Glackmeyer, Cons. 3 to 6 incl. . .							3.0	8	.....				3.0	2300
48	Clute-Ottaway at Buskego River. . . .									.....
49	Fournier-Lamarche, Cons. 1 to 5.	2.5	50					1.5	24	.....		7900	3½x2	2.9	2370
										.....		1900	5x2		
										.....		940	5x3		
										.....		950	5x2½		
50	Glackmeyer-Brower and Glackmeyer- Lamarche.	4.35	33	4.35	33	.....		5.83	30	.....		526	4½x3	1.44	593
								1.22	24	.....		11780	3½x1½		
										.....		11250	3x3½		
										.....		945	4x4		
										.....		1643	4x3		
DRYDEN DISTRICT.															
51	Aubrey Township. . .	1.0	66	1.0	66	1.0	35	.5	24	.....		2240	4x2	.....
						.25	50	1.63	22	.....		3570	5x2		
										.....		600	cleaned		
52	Browning Rd. - Eton Township. . . . .	.06	66	2.0	50	3.0	28	2.0	24	.....		470	4x1½	.....
		.26	16							.....		3892	4x2	.....
		3.0	50							.....		250	4x2½	.....
										.....		2932	4x3	.....
53	Dryden - Richan Rd., Wainwright Twp. . .									.....

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	DRYDEN DISTRICT.— <i>Continued.</i>														
54	Eton Township.....	1.5	66	1.0	66	2.17	35	2.33	22			36 200 1320	3x1½ 4x3 4x2		
55	Finn Settlement Rd., Wabigoon Twp....	3.75	66	3.5	66	1.75 2.5	33 35	4.0	22	.13	18	2550 2540	3x2½ 3x2	.25	168
56	Ignace-Ossaquin Rd..	3.5	66	3.0	66	3.0	33	.5 1.5	22 24	.13	16	2145	3x2		
57	Melgund Township..	.13	33					5.25	22			450 378	3x3 3x1½		
58	Mutrie Township....	.56	40	.5	40	.56	24	3.4	22			1050 2755 220 2640	5x2½ 4x2 5x1½ cleaned		
59	North Rd.-Rugby Township .....	.25	66	.5	66	.06 .04	33 33					5876 60 200	4x1½ 8x3½ 5x2		
60	North Waldhof Rd., Mutrie Township..	1.5	66	1.0	66	1.38	35	1.75	22			1625 900	4x2 cleaned		
61	Rice Lake Rd.-Zea- land Township.	1.0	66	1.0	66	1.0 25	33 35	1.83	22			264 96	3x2 3x1½	.38	300
62	Sanford Township...	5.58	66	4.15	66	2.83 2.0	35 33	.6 3.5	22 24			5955 2088 530 390 900 900 700	5x2 4½x2 4x2 3½x1½ 4x1 3x1½ 5x1½		
63	Vermilion-Quibell Rd.	8.0	30	12.0	30			.5	22			900	4x3	.17	135
64	Wabigoon - Vermilion Rd.	1.0	32	1.0	32			2.0	24			450 600	4x1½ cleaned	8.5	7138
65	Wainwright Twp....	.5 .16 .94	32 44 66	.16 .44	44 66	.94	35	1.06	22			330 1120 1980	4x3 18x4 4x2		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		1		1			2x1½x18			Grade reduced on three hills.	54
				1			2½x1½x20				
				10			4x2x24				
				1			3x3x20				
				1			4x12x18			Grade reduced on two hills.	55
				16			3x3x18				
				1			3x3x24				
				1			3x7x18				
				2			4x6x18				
				6			2x3x18				
				1			2x2x18				
				1	repaired						
				3			3x5x20			Grade reduced on three hills.	56
				3			2x3x22			Rock and boulders removed from 2 miles of road.	
										2850 c.yd. earth fill for covering.	
				7			3x2x20	2	16x6		57
				1			3x4x20	2	Removed.		
				1			2x4x20	1	Repaired.		
		3.4		8			2x2x20				
				1			5x1½x20	1	16' span.		58
				1			4x1½x20				
				9			3x3x18				
				1			4x6x18				
				1			3x8x20			Grade reduced on two hills.	59
				1			6x1½x20				
				1			4x2½x20				
				8			2x4x20	1	7x20x18	Grade reduced on one hill.	60
		.47		5			4x3x20			Grade reduced on four hills.	61
				8			4x3x22				62
				4			2x2x22				
				4			2x4x24				
				2			4x4x18				
				4			2x2x18				
				1			3x3x20				
				1			4x4x22				
		14		1			1½x1½x22				
				1			3x3x16	1	14x16	111 c.yd. rock excav.	63
								1	16x18	Grade reduced on one hill.	
		63	2½	2	repaired					Grade reduced on one hill.	64
				1			4x4x22			20 c.yd. rock excav.	
				4			2x2x20				65
				1			4x2x18				
				1			4x2x24				

DEPARTMENT OF LANDS AND FORESTS,
ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	DRYDEN DISTRICT.— <i>Continued.</i>														
66	Zealand Township...	1.0 .69	40 66	1.0 .69	40 33	1.0 .3	32 33	1.71 .5	22 re	.09 .05	16 14	1180 220 938 2480	4x2½ 4x2 4½x2½ 3x2	1.38	1040
67	Wainwright-Zealand Boundary.	1.75	66	1.75	66										
	ENGLEHART DISTRICT														
68	Beauchamp Twp.....					2.0	20	1.42	18						
69	Bryce Township.....													.04	40
70	Buck Township.....														
71	Chamberlain Twp....	.25 .5	12 66	.25	12	.25 .5	12 20	.25 .5	12 18					1.0	726
72	Dack Township.....							1.5	re					.31	244
73	Evanturel Township.													3.5	661 293
74	Ingram Township...	1.25	66	1.25	66	3.25	20	3.25	18						
75	Lorrain Township...	3.75	66	3.75	66	3.75	33								
76	Marter Township....	1.5 1.5	66 brushing	1.0 brushing	66 ..	2.0 1.0	20 24	4.0 1.0	18 20	.06	10	660	2x2	.06	44
77	Otto Township.....	2.0	66	2.0	66	1.0	18								
78	Pacaud Township...	1.5	brushing	brushing	..	2.5	20	1.5	20						
79	Robillard Township..	3.0	66	3.0	66	4.25	20	3.0 3.75	re 18			660	2x3		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L coverd			Wood	Stone or Conc.	Metal	Size	No.	Description		
			.62	1			3x3x20	1	7x6x22		66
				6			4x2x18	2	4x6x20		
				1			5x7x18				
				2			2x3x18				
				1			4x4x18				
				2			4x2x20				
				2			3x1½x20				
				1			3x2x20				
				1			4x4x20				
											67
				6							
			1					1	Repaired.		68
								1	50' span.		69
				2			3x4x16				70
											71
				3			3x4x16	1	22x16	Grade reduced on 11 hills.	72
				2			4x5x16	1	21x16		
				1			4x5x20				
				2			4x4x16				
						1	20''x40'				
					1		3x4x40				
		3	3			1	18''x65'	1	60' span.	Grades to bridge im- proved	73
								1	Repaired.		
					2		3x4x16				74
	2.0							1	15' span.		75
				6							76
				4							
				1			2x3x16				
				4			3x4x16				
				4			3x4x16				77
				1			3x4x20			Grade reduced on four hills.	78
				1			8x6x20				
				4			3x4x16				
				1			4x12x18			Grade reduced on 25 hills.	79
				2			5x5x18				
				1			3x6x18			.98 mile covered with 59 c.yd. clay.	
				1			5x8x18				
				2			3x3x16				
				1			5x12x16				
				1			5x5x22				
				1			5x5x20				
				1			3x4x16				
				1			5x6x30				
				1			5x3x16				
				1			5x8x16				
				1			14x6x16				
				1			4x5x22				
				1			5x3x22				
				1			6x4x22				
				1			5x3x22				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
ENGLEHART DISTRICT. —Continued.															
80	Savard Township....	2.0	br	ushing		2.0	20	2.0	18						.5 391
81	Sharpe Township....	.5	66	.5	66	4.31	20								
82	Chamberlain-Dack Boundary. ....	.25	66	.25	66	.25	20	.25	18						
83	Chamberlain-Pacaud Boundary.														
84	Chamberlain-Savard Boundary.														
85	Dack-Evanturel Boundary.							1.0	re						
86	Evanturel-Marter Boundary.														
87	Marquis-Savard Boundary.	2.0	br	ushing											
88	Robillard-Truax Boundary.	1.0	66	1.0	66	1.0	20								
HEARST DISTRICT.															
89	Casgrain Township..	1.68	66	2.0	24	.33	24	.33	24						.83 664
90	Casgrain-Hanlan Boundary.					1.60	24					2874 233	3½x2 4x2		
91	Eilber Township....	2.0	66	2.0	66	3.25	28								
92	Hanlan Township...	4.12	66	4.12	66	3.15	24					6300 522	3½x2½ 3x2		
93	Hanlan-Way Bdry...											2664 1450	3½x2½ 4½x2		
94	Kendall Township...	2.45	66	2.45	66			.13	re			14845 975 1320	2x3½ 2x4½ cleaned	6.5	5194
95	Kendall-Way Bdry...	1.5	66	.75	66										
96	Lowther Township...	6.12	66	6.12	66										
97	Lowther-Way Bdry...	4.13	66	4.13	66										
98	Way Township.....	5.0	66	5.0	66			.06	re			600	3½x1		
KAPUSKASING DIST.															
99	Fauquier-Township..	10.55	66	1.59 6.55	24 66	3.46	24					2000 1500	cleaned. 4x2		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		Miles	Miles								
			2½	6			16x3x14	1	Re-covered and	approaches filled.	80
				2			5x6x25	1	Repaired.	Grade reduced on 23	
				5			3x4x16			hills.	
				2			4x4x16				
				2			3x6x20				
				2			2x3x16				
				1			4x3x18				
				1			6x6x30				
				1			4x4x20				
				1			3x5x16				
				1			8x6x16				81
				3			3x4x16				
				1			4x4x16				
										25 mile covered with	82
			6							244 c.yd. clay.	83
				1			4x6x20	1	30' span.	Fill 300'x22'x5'	84
								2	Rebuilt.		85
				1			3x4x20	1	80' steel.	Approaches improved.	86
			2	3			3x4x16				87
				1			6x6x30			Grades reduced on 2	88
										hills.	
		3.5		5			3x3x18	2	Partly built on	Grade reduced on 1 hill.	89
									only.		90
											93
		6.75	1	2			3x3x18	1	Partly built	.88 mile covered with	94
				2			2x3x18		only.	2305 c.yd. clay.	
				2			3x3x17				95
											96
		2.5						1	Partly built	1.5 mile covered with	97
									only.	1160 c.yd. clay.	98
										790 c.yds. cut and placed	99
										on one mile of road.	

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
KAPUSKASING DIST.— <i>Continued.</i>															
100	Fauquier-Machin Boundary.	2.0	66	1.0	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
101	Fauquier-Nansen Boundary. ....	.....	.....	.....	.....	1.5	24	.....	.....	.....	.....	.....	.....	.....	.....
102	Haggart-Shackleton Boundary.	1.75	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
103	Machin Township.	1.5	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
104	Nansen-Shackleton Boundary.	2.45	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
105	O'Brien Township.	1.0	66	.....	.....	1.0	24	1.0	24	.....	.....	525	4x3	.....	.....
106	Shackleton Twp.	6.11	66	2.67	66	.....	.....	.....	.....	.....	.....	19134	2x3½	.....	.....
107	Trunk Road along C. N. Railway. ....	.....	.....	.75	.....	.....	.....	1.25	25	.....	.....	850	6x2	.....	.....
		.....	.....	.....	.....	.....	.....	2.78	24	.....	.....	1500	4x3	21.0	8887
		.....	.....	.....	.....	.....	.....	1.73	26	.....	.....	5500	cleaned	.....	.....
KENORA DIST.															
108	Charlesbois Rd.	2.0	36	2.0	36	.25	36	.75	22	.....	.....	3960	3x1½	1	999
109	East Melick Rd. ....	.....	.....	.....	.....	.5	36	.25	24	.11	18	1300	4x1½	2.75	2700
		.....	.....	.....	.....	.....	.....	.7	20	.....	.....	5600	4x2	.....	.....
110	Keewatin-Manitoba Boundary Rd.	31.31	66	31.31	66	5.0	33	.6	16	.04	14	2000	6x2	.25	349
		.....	.....	.....	.....	.....	.....	.37	20	.....	.....	5200	4x2	.....	.....
111	Kenora-Redditt Rd..	4.25	66	4.25	66	.4	50	2.4	24	.64	16	2700	4x1½	4.88	6175
		1.08	20	1.18	20	1.18	40	1.23	22	.46	18	7800	3x1½	.....	.....
		.23	10	2.0	40	.74	33	.51	20	.....	.....	4500	3x16	.....	.....
		4.0	40	.37	45	.85	20	.12	26	.....	.....	6300	3x2	.....	.....
		1.4	45	.57	8	.....	.....	.45	30	.....	.....	330	2x1	.....	.....
		2.25	33	3.25	33	.....	.....	.4	33	.....	.....	1200	4x2½	.....	.....
112	Muriel Lake Rd.	2.5	20	1.0	20	1.5	20	1.5	20	.....	.....	10560	3x1½	1.38	2200
		.....	.....	2.0	12	.....	.....	.5	18	.....	.....	.....	.....	.....	.....
113	Round Lake Rd. ....	.75	40	.75	40	.5	30	.5	30	.....	.....	2640	4x2	.25	100
114	West Melick Rd. ....	.08	30	.05	30	.08	6	.05	30	.....	.....	699	3x2	1.0	726
		.5	10	.5	10	.....	.....	.56	5	.....	.....	1200	2x1	.....	.....
		.....	.....	.....	.....	.....	.....	.11	20	.....	.....	.....	.....	.....	.....

DEPARTMENT OF LANDS AND FORESTS,
ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	MATHESON DIST.														
115	Beatty Township....	3.5	66	3.5	66	3.5	26	4.5	24						
116	Beatty-Carr Bdry....														
117	Beatty-Hislop Bdry....														
118	Benoit Township....	1.0	66	1.0	66			1.0	20						
119	Bond-Currie Bdry....	.13	12			1.5	26	2.0	26	.08	12	2075 4980 6920	4x2½ 4x1½ cleaned		
						.28	4								
120	Bowman Township..	.11	66			.11	50	.95	24						
121	Bowman-Currie Bdry....							2.0	re						
122	Carr Township.....	1.0	66	1.0	66	1.25	26	.5	24						
123	Carr-Taylor Bdry....							1.25 1.0 1.0	22 re 24						
124	Carr-Wilkie Bdry....							2.0	20			900 100 4416	3x2 4x3 off take		
125	Currie Township....	2.0	66	2.0	66	2.0	26	1.0	20						
126	Hislop Township....	3.0	66	1.0 3.0	26 66	4.7	26	1.5 .08 3.25	re 30 20			50 74 830 3595	2x1 3x1 3x2 off take		
127	Hislop-Playfair Bdry.	.28	66	.28	66	.28	26	1.2	20			3600	off take		
128	Playfair Township...							1.25	20			1347 5388	3x2 off take		
129	Stock Township.....	1.0	66					.75 .5 .25	20 24 re			1085 1627	2x1 off take		
130	Taylor Township....	1.0	66	1.0	66	2.43	26	6.61 .88	20 26			60 1073 242 184 154 30 6433	6x3 3x2 3x1 2x2 2x1 7x4 off take		
131	Taylor-Walker Bdry....														
132	Walker Township...	1.5	66	1.5	66	2.0	26	3.39	20			120 225 1140	3x1 3x2 off take		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
				1			2x4x18	1	15' span.	3600 c.yd. clay removed.	115
								1	Repaired.		116
		3.5									117
		3					2x4x18				118
		9.75		1			4x6x19			1067 c.yd. clay fill.	119
				1			3x4x18			1.7 mile covered with	
				1			3x4x35			1484 c.yd. clay.	
				1			4x2½x22				
				1			2x3x18	1	105'x 18'	2644 c.yd. earth excav.	120
				8			2x4x20	1	16'		
				4			2x2x20			.36 mile muskeg covered	121
										with 315 c.yd. clay.	
		6.5		6			2x2x18	2	Repaired.	12 c.yd. gravel fill.	122
				3			2x2x16	1	Two 15' spans.	2068 c.yd. clay used in	123
				2			4x4x20			covering muskeg, 888	
				4			2x3x20			c.yd. clay fill.	
				12			2x4x18				124
				9			3x4x18				125
				2			2x4x18				
				7			4x4x16	1	30' and two 16'	72 c.yd. clay and 50	126
				3			2x2x16			c.yd. rock fill.	
				1			6x6x16				
				2			1x12x16				
				12			2x4x16				
				4			1x4x16				
				7			2x4x16				127
				3			4x4x16				
				1			6x6x16				
				3			2x4x16	1	16' span.		128
				1			1x4x16				
				1			4x4x16				
				4			2x4x16				129
				1			1x4x16				
				2			6x6x20				
				6	repaired						130
				34			2x4x15	2	16' span.		
				23			3x4x16				
				2			6x6x16				
				2			3x4x22				
				1			4x5x20				
				1			4x4x20				131
				15			2x4x16	1	104' long.		132
				16			4x4x16				
				1			6x10x16				
				2			6x16x16				

DEPARTMENT OF LANDS AND FORESTS,
 ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
133	MUSKOKA DIST. Gravenhurst-Bala- Parry Sound Rd...	.45 .8	40 br	..... ushing	.....	.....	.....	2.36	16	.....	.....	1700 14000	3x1 2x1	5.1	4680
134	Huntsville-Dwight Rd.....	.....	.....	.....	.....	.....	.....	11.5	re	.....	.....	225 40 30 400	3x1½ 2½x1 3x2 creek	.....	.....
135	Severn - North Bay Road, Severn to Novar Section.....	12.38	s.	brushi ng	.....	.25 2.5 .35 .44	20 24 30 50	30.30	re	.....	.....	1500 1125 125 2000 450 2000 3545 15 160 175 5676	2x1 2x1½ 2x2 2x2½ 3x1 3x1¼ 3x1½ 3x2 3x2½ 4x4½ cleaned	36.5	6584

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L coverd			Wood	Stone or Conc.	Metal	Size	No.	Description		
.....		6	.....	2	.....	.....	1x3x14	.....	.....	350 c.yd. earth fill.	133
				6	.....	.....	4x4x16			200 c.yd. rock fill.	
				2	.....	.....	2x2x16				
				6	.....	.....	1x1x16				
				6	.....	.....	1½x1½x16				
				2	.....	.....	3x3x24				
.....				1	.....	.....	4½x5x20	.....	.....	129 c.yd. stone fill.	134
						2	1½x18			104 c.yd. earth fill.	
						1	32"x20'				
						1	10"x20'				
						1	25"x26'				
675 placed in piles main ten- ance.	675 for ten- ance.	105.91	.....	1	.....	.....	5x5x18	2	10'x 14'	11,210 c.yd. rock excav.	135
				1	.....	.....	8x12x30	1	15'x 24'	44,600 c.yd. earth excav.	
				1	.....	.....	10x10x16	2	Temporary.	524 c.yd. stone fill.	
				1	.....	.....	2x2x20			1315 c.yd. earth fill.	
				1	.....	.....	1x2x24				
					1 Co	nc.	7' span				
					1 Co	nc.	10' span				
					3 St	one	18"x24'				
						1	8"x18'				
						1	12"x18'				
						1	16"x18'				
						4	18"x18'				
						2	24"x18'				
						5	12"x20'				
						1	20"x20'				
						1	24"x20'				
						4	18"x22'				
						1	20"x22'				
						12	12"x24'				
						4	18"x24'				
						1	20"x24'				
						9	24"x24'				
						1	30"x24'				
						1	38"x24'				
						1	10"x26'				
						5	18"x26'				
						1	20"x26'				
						6	24"x26'				
						1	24"x27'				
						1	34"x27'				
						10	12"x28'				
						6	18"x28'				
						2	20"x28'				
						5	24"x28'				
						1	36"x28'				
						1	30"x35'				
						1	12"x36'				
						2	24"x36'				
						1	30"x36'				
						1	20"x40'				

DEPARTMENT OF LANDS AND FORESTS,
ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	NIPissing-Sudbury- Renfrew Dist.														
136	Balfour-Dowling Boundary	1.25	66	1.25	66	.5	24								
137	Callander-Mattawa Road .....	.6.25	br	ushing				4.15	re					40.0	8946
138	Hagar-St. Charles Road .....	.41	40			1.0	30	.5	16			5280	3x1½	1.0	156
139	Larchwood-Phelan Road	2.75	66	2.75	66	2.0	24	2.75	24			300	4x1½		
140	Mattawa-Pembroke Road	12	bru 4.14 3.3 4.23 2.55	sh 44 40 24 45	'g 4.14 1.8 4.23 2.55	44 40 24 45	11.02	24	11.69	24		300 100 225 225 40 25	1½x1½ 1½x2 6x3 2x5 2x2 2x3	36.13	4440
141	North Bay-Callander Road .....							.25	re			300 50	cleaned do	8.0	1428
142	North Bay-Sudbury Road	19.5 .25	s. 40	brushing .25	40			1.0	18			12540 3860 228 264 2050 400 20	cleaned do 3x1½ 3x3 2x1¼ 2x2 4x3	85.35	17114
								49.75	re						

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cover- ed			Wood	Stone or Conc.	Metal	Size	No.	Description		
		172		2	repa	ired					136
				1	repa	ired	1½x1x24	1	Recovered.		137
				1			2x2x18				
				1			2x1x12				
				1	1 Stone		1½x1½x18				
				2	Stone		2x4x20				
				1	Stone		1x1x24				
				1			2x4½x16				
				3			2x2x24				
				8			4x4x16			2000 c.yd. stone in Rip-	138
				1			4x8x16			Rap.	
				3			2x3x16				
				1			2x6x24				139
				5			2x4x21				
		106.83		1			3x6x18	1	Railing repaired	1347 c.yd. earth cut.	140
				2			2x2x18			4489 earth fill.	
				15			2½x2½x18				
				3			3x3x18				
				5			3½x3½x18				
				1			7'x18'x18'				
				1			1½x1½x18				
				4			2x6x18				
				1			6x2½x18				
				8			5x5x18				
						1	32''x24'				
						1	replaced				
				1			1½x1½x18				
				1			8''x8''x18				
				1			3x3x20				
						3	24''x18'				
				3			repaired				
		77		1			2x2x16				141
					2 Conc.		1½x20				
					2 Conc.		2x20				
						1	replaced				
				1	repa	ired					
				6	clean	ed					
								1	King truss, 200'	830 c.yd. rock fill.	142
									long.	1150 earth cut and fill.	
		272	8.25			1	27''x20'	1	Rebuilt.		
						3	27''x20'	4	Re-covered.		
					1 Conc.		30''x20'				
				6	repa	ired					
				5	repa	ired					
				1	rebu	ilt					
				1	length	ened					
				1			10x14''x22'				
				1			2x3x18				
				1			2½x4x16				
				2			3x4x16				
				7			2½x6x16				
				2			1x1½x20				
				1			1x1½x24				
				1			1½x1½x18				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	NIPISSING-SUDBURY- RENFREW DIST.— <i>Continued.</i>														
143	North Bay-Widdifield Road.	3.0	br	ushing	..	3.5 1.0	24 20	4.16	re			30	3x3	12.0	1205
144	Noelville-Rutter Rd.							8.0	24			1800	1½x3	4.5	3002
145	St. Charles-Noelville Road.	5.0	66	5.0	66	4.25	30	.75 1.5 6.25	26 18 16	.08	14	2000 2000	3x1½ 2½x1½	7.0	588
146	Sturgeon Falls Field Road.	4.66	si	debrus	hi ng			9.4	re			100	2x3	4	2504
147	Sturgeon Falls-Smoky Falls Road.											200	2x1½		60
148	Sudbury-Capreol Rd.							7.0	re					14.80	4996
149	Sudbury-Chelmsford Road.							5.0	re			2000 1100	3x1½ 2x3	10.00	2472
150	Warren-St. Charles Road.														95
151	West Tree - Shining Tree Road.	2.0 .25	40 50	1.0	40	1.0 .25	40 16	1.5 .25	20 12	.5 .04	16 10	2640	2x3	3.5	2684
	PARRY SOUND DIST.														
152	Burks Falls- Magnetawan Rd....	.97	24					.36 .35 .25	re			3200 850 400	cleaned 3x1 2x1½	8.3	3259
153	Chisholm-North Bay Road. ....							.25	18			8430	2x1	.13	190

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		16.5		5			2x5x18			465 c.yd. earth fill,	143
				1			2x3x18				
				4			6x2x18				
				2			5x2x18				
				2			4x2x18				
				6	Conc.		1½'x 18				
				3			2x3x16			2000 c.yd. earth cut and	144
				1			3x3x16			fill.	
				1	rec-overed					50 c.yd. rock repair to	
										Rip-Rap.	
				5			2x4x16			3020 rock fill.	145
				1	re-covered						
				7	Stone		4x2½x16				
		16.66		18			3x4x16				
				14	1 repaired		1½x1½x18	3	Repaired.	18 c.yd. stone fill.	146
				1	Stone		1½x1½x20	3	Re-covered.		
							1½x2 x20	1	24'x 16'		
						1	3x20	1	16x8		
		10									147
		18		1			4x8x16			.5 mile clay road cover-	148
										ed with 300 c.yd.	
		4				1	10''x20'			earth.	149
				1			1¼x2'x20'			300 c.yd. rock fill.	150
			19	25			2x4x16	3	Repaired.		151
		9.5		1	extended		2'			4125 c.yd. earth fill.	152
				1			5'x 18'				
				7			6x18				
				1			4x16				
				2			4x18				
				1			12x18				
				1			4x6x18				
						2	30''x24'				
						2	24''x20'				
						2	18''x20'				
						4	12''x20'				
						1	20''x24'				
				1			3x3x20				153
				1			1½x3x18				
				1			2x3½x16				
				1			1x2x16				
				1			1½x2x16				
				1			1x3x18				
				1			2x4x18				
						1	8''x18'				
						1	12''x18'				

DEPARTMENT OF LANDS AND FORESTS.
ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	PARRY SOUND DIST. —Continued.														
154	Parry Sound - Mag- netawan Road..... (Waubanik-McKellar Section).							4.29	18			4050	3x1	4.0	1711
155	Powassan-Chisholm Road.....	.1		brushing								2500	cleaned	7.5	268
156	Powassan to Loring, (via Christian Valley)	.5	42 ½	.07	66	.55 .56 .07	30 35 66	4.25 2.25	24 24			1300 396 6627 4138 4820 1275 260	4x1 ½ 2x1 2 ½ x1 ½ 3x2 ¾ 3x2 3 ½ x1 ¼ 1 ½ x1	4.0	3235
157	Powassan - Nipissing- Restoule Road.....							16.0	re			300	2x8	9.14	831
158	Cross over Road from Powassan - Loring Rd., to Trout Creek -Loring Rd. in Twp. of Pringle.....	1.25	66	1.25	66										
159	Severn - North Bay Road..... (Novar - Callander Section).	.25		brushing				11.25	re			2006 11757 2220 200 160 66 21300	3x2 2x1 3x1 ½ 2x ½ 2 ½ x1 5x1 ½ cleaned	63.0	9977

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		Miles	Miles								
					6 Stone		18"x18'				154
					5 Stone		24"x18'				
						9	12"x18'				
						8	18"x18'				
						3	24"x18'				
				1			6x3x18			4 c.yd. stone fill.	155
				1			2x4½x16				
		4.25		1			2x3x24			50,441 c.yd. earth cut	156
		3.25		1			3x3x25			and fill.	
				1			3x3x20			4,387 c.yd. stone wall.	
				5			2½x3x20			2,005 c.yd. stone fill.	
				2			4x4x20			1,500 lin. ft. fencing.	
				4			2x3x20			50 c.yd. rock excav.	
				2			2x3x30			4½ miles creek cleaned.	
				1			2x2x20				
				1			4x8x20				
				12			2x3½x20				
				1			2x4x20				
				2			2½x3½x18				
				2			2x4x30				
				1			2x3x40				
				2			2x3½x18				
				2			1x3x18				
					1 Stone		1x4x20				
					1 Stone		2x3x20				
					1 Stone		2½x3x16				
					1 Stone		1x3x18				
		8		1			4x3x18			705 c.yd. rock excav.	157
				1			3x6x14			227 c.yd. earth fill.	
					1 Stone		2x4x16			50 c.yd. stone fill.	
					1 Stone		1x2½x16				
				14	repaired						158
		208.8		1			21x16	1	Repaired.	994 c.yd. earth fill.	159
				1			2x4x18	1	Re-covered.	229 stone fill.	
				1			1x3x16			70 c.yd. cinders placed	
				2			3x4x18			on road.	
				3			2x3x18			85 c.yd. stone removed	
					2 Stone		2x1x20			from road.	
					1		4x6x20			36 c.yd. rock excav.	
					1		3x4x18				
				16	cleaned						
				2	re-covered						
				1	repaired						
							20"x24'				
							20"x20'				
							36"x20'				
							24"x20'				
							12"x20'				
							18"x20'				
							14"x20'				
							10"x20'				
							24"x20'				
							24"x26'				
							24"x24'				
							18"x19'				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

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DEPARTMENT OF LANDS AND FORESTS,
 ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	RAINY RIVER DIST. —Continued.														
174	Emo-Off Lake Road.							1.25	28						4.25
175	Finland Road, Potts Township.							1.75	30						.31
176	Fort Frances - Rainy River Road	5.31	brushed					4.70	re			1100 1980 1940 2230 2390 17700	5x3 5x2½ 6x2½ 3x3 3x2½ 5x2	46.0	
177	Frog Creek Road, Crozier Township.													2.0	450
178	Grassy River Road, West Branch, Twp. of McCrosson.	1.5	66			1.5	33 .78 30	1.0	26			1073	4x2		
179	Indian Mission Road.							1.38	26			600	4x2		
180	Lash Township.													1.0	400
181	Miscampbell Twp.													1.0	650
182	Morley Twp., Con- solidated Sch. R'te.	1.0	66					1.31	28					2.2	1437
183	McGinnis Creek Rd.													.5	320
184	McIrvine Township.											2640	3x2		
185	Nelles Township.	2.0	66	2.0	66	2.0	33					5280	3x2		
186	Nelles Pattullo Bdry.							.31	26			235	5x2	.15	96
187	Pattullo-Tait Bdry.	.25	66	.25	66							4950	4x2		
188	Pratt Township.	1.0	66	1.0	66									2.5	1625
189	Richardson Twp.													4.0	731
190	River Road, Ayles- worth Twp.													19.00	1515
191	Sleeman-Bergland Rd.											561	4x2	1.45	963
192	Sleeman-Bergland Road, Minahico -Morson Ext'n.	2.0	66	.5	66			.62 1.52	28 26			1568	4x2 4½x2		
193	Spohn Trunk Road.											330	4x2	2.5 12.0	1625 1600
194	Spohn Township.	2.0	66	2.0	66							2640	5x2		
195	Spohn River Road.											13200	4x2		
196	Stratton - Sifton Rd. and North Branch Road.	.13	66			.25	30	1.0 1.0 1.0 .09	34 40 36 20	.03	8	2910 5034 247	5x2 5x3 3x1½	7.0 .44	1210 272
197	Tank Road.	3.78	66	2.28	66	.78 .38 .5 .5	66 36 20 28	1.5 .5	36 26			325 1300 1500 4010	4x2 4x1 5x2½ 5½x2	2.0	1300

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L. cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		80		1			4x3x20			35 c.yd. stone fill.	174
		8		8			rebuilt				
				4			2x2x16				175
				4			3x16"x16				
		24.56		1			3x1x16	3	Re-covered.	A small portion of this work was executed on the Devlin Road and the Lavallee Road.	176
				4			3x4x20				
				1			1½x3x40				
				1			4x6x24				
				1			4x5x24				
				1			4x4x20				
				1			3x4x24				
				1			2x2x24				
				1			2x3x20				
				1			4x4x16				
				4	repa	ired					
											177
				2			2x4x18				178
				1			2x4x16				
		58									179
											180
		1		1			3x3x16				181
											182
											183
											184
											185
											186
											187
											188
		12									189
											190
				2			4x3x18				191
				1			3x4x16				192
		216									193
											194
		252		2			4x3x16	2	Repaired.		195
				2	re-cov	ered					196
		4		4			3x4x16				197
				5			4x4x18				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L ft.	W & D	L mfs.	Yards used
	TEMISKAMING TRUNK ROAD														
198	Boston Creek-Round Lake Road.....	1.47	66	.93	66	.56	26								
199	Boston Creek-Skead Road.....					.93	22	.62	18			4500	2x3		
200	Charlton-Englehart..	3.0	brushed					4.0	re						
201	Charlton-Elk Lake...	2.0	brushed							.01	14			.75	597
202	Dane-Larder Lake...							10.0	re			5280	3x2	15.0	1263
203	Elk Lake-Gowganda.	5.1	brushed					2.3	re			3960	2½x1½	12.11	6439
												3230	2 x 1½		
												750	1½x1½		
204	Elk Lake - Milberta Road.....	2.5 2.9	brushed 66	2.9 66		1.85	33	3.6	22			594 264	2 x 2½ 2½x1		
205	Kirkland-Goodfish...														
206	Kirkland-Lebel Road.	.15	66			1.40	33	4.45	18	.13	18	5280 2220 2700 750	2x1 3x2 2x1½ 2x2	3.0	694
207	Latchford - Cochrane Trunk Road:—														
(a)	Cobalt-New Liskeard Section.	3.5	brushed			.3 .4	12 16	10.0	re			7920 1650	3x2 4x3	9.5	5281
(b)	Dane-Swastika Sec...	.85 .5	10 16					5.0	22			400 2000 2100 500 2500 5280	1½x1½ 3x2 4½x4½ 2 x 2 7 x 2½ 3 x 3		
(c)	Ramore-Matheson Section.....							5.75	re			1000	2x3	3.0	2486

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		REMARKS
Yds. crush-ed	L. cov-ered			Wood	Stone or Conc.	Metal	Size	No.	Description	
										198
				4			6x3x16	1	22x14	100 c.yd. earth cut.
				1			9x6x16			100 c.yd. earth fill.
				4			3x4x16			
				2			3x4x16			200
				2			3x2x16			
				1			4x4x23			
						5	20'x20'			
			4	5			3x4x16	3	Repaired.	201
				16			3x2x16			
860	1.5	6		3			2x2x16			202
		10.5		1			14'x 14'	2	Repaired.	799 c.yd. earth cut.
				1			4x16			1676 c.yd. earth fill.
				8			1½x16			
				3			3x16			
				1			1x16			
						5	18''x14'			
						11	12''x14'			
						1	12''x16'			
				5			1x21	1	32x16	535 c.yd. earth cut.
				1			4x21	1	45x16	773 c.yd. earth fill.
				2			4x6x20			896 c.yd. rock fill in piers.
824	2.5							1	Repaired.	205
				5			4x2x20			206
				2			4x2x16			
				2			2x2x16			
				1			2x2x20			
				3			2x4x16			207
		5		1			6x4x24			2086 c.yd. cut and fill.
						17	18''x22			(a)
						2	24''x22'			
				2			3x2x20	1	54 x 16 cement piers.	200 c.yd. gravel fill.
				4			4x2x20	1	Timber.	3255 c.yd. earth cut.
				2			3x8x20	2	16' pile bents.	780 c.yd. earth fill.
				2			18x19x25			4032 c.yd. rock excav.
				5			2x2x16			
				2			4x2x16			
				1			7x8x16			
				4			2x4x16			
				2			3x4x16			
				2			4x5x16			
				6			2x2x24	2	Rebuilt.	6815 c.yd. earth cut and fill.
				3			1x2x20			(c)
				1			3x4x20			
				1			2x4x20			
						1	48''			

DEPARTMENT OF LANDS AND FORESTS,
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		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	TEMISKAMING TRUNK ROADS—Continued.														
(d)	Matheson-Monteith Section.....													7.5	6912
(e)	Monteith-Porquis Section.....							2.8	33			2800 700 1200 500	3½x2 6 x2½ 6 x3 4 x3		
(f)	Porquis Jct.-Holland Section.....													1.65	1134
(g)	Holland-Cochrane Section.....	7.0	66	7.0	66	1.5	33	.5	33			300	3½x3	1.5	25
208	Lightness River Rd., (Munro-McCool & Michaud Twps.)	12.0	brushed			12.0	10							4.0	1442
209	Matachewan to Island Rapids.....	1.25	66	1.25	66										
210	Matheson-Shillington- Porcupine Road.	.5	brushed					1.08	26			4575	3x1½	3.75	3366
211	Monteith-Shillington- Road.....													2.0	452
212	Munro Road.....							7.0	re 24			9880	3½x2		
213	Porquis Jct.-Iroquois Falls Road.....							1.55 .87	24 33			2900 900	2 x4 4 x4		
214	Porquis Jct. - Tim- mins Road.....	2.45	66	11.45	66	2.89	30	5.61 .38	26 24			310 3000 1524 500 1550	3 x3 3½x1½ 3x2 6x3 2x2	1.58	2501
215	South Lorrain Road.	3.76 1.17	66 brushed	3.76	66	4.43 4.0 .5	33 8 12	5.17	22			9290	3x1	5.0	1453
216	Swastika-Kirkland Road.....														223
	THUNDER BAY DIST.														
217	Arthur St. Road.....	3.43	brushing									7062 450	4x2 3x1	1.8	734
218	Conmee Road, Oliver Township.....	.75	brushing											.5	432
219	Conmee Township.....													1.55	1209
220	Current River Road.							.25	24					.25	200
221	Dawson Road.....	1.0 1.25	40 brushing	1.0	40	.75	26	1.0 1.0	25 re			8560 2000	2½x1½ 3 x1½	5.38	3656
222	Dawson Road Lots Township.....	1.0	66	1.0	66	1.0	26	.5	24			5280 300	2x1½ 3x2		
223	Dog Lake Road.....	3.75	brushing									3590	cleaned	3.5	1385

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cov- ered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		4.5						2	Rebuilt.	2527 c.yd. earth cut and fill.	(d)
		1		2			20x20"x16			1000 c.yd. earth cut and fill.	(e)
				3			1½x1½x16				(f)
		2	2	1			2x2x20				(g)
				4			4x4x18			1 mile roadway cleared of boulders.	208
				2			2x6x18				209
			15	3			2x4x18				210
		7			1 Conc.		42"x35 Double				211
		11			1		2x2x16				212
				1			4x4x18	2	18x12x24	356 c.yd. earth cut and fill.	213
				3			1½x1½x16				
				5			3x4x20				
500	.57	2		1			2x2x24	4	Timber.	1575 c.yd. earth fill.	214
				14			3x4x24	1	Concrete abutments.	15673 c.yd. earth cut.	
				1			4x2x22				
				4			2x2x16				
				1			1½x1½x16				
						2	20"x22				
		2		3		16	18"x22	1	Re-covered and repaired.		215
				1			4x4x22				
							4x2x22				
						13	18"x22				
						1	24"x22				
936	2		5			18	12"x22	1	Timber.	275 c.yd. rock fill. 313 c.yd. gravel fill. 1.9 miles tarred, 12' wide.	216
		67.25			2		18"x25'	1	Repaired.		217
											218
		12									219
		26		4			16x3x3	4	Re-covered.	1000 c.yd. rock excav. 800 c.yd. earth excav.	220 221
					2		25x18"				
					1		22½x18"				
				5			18x2½x2				222
				5			18x2x1				
		3.5		3			18x4x2	1	30' truss on cribs.	625 c.yd. earth and stone excavation.	223
				1			16x4x4	1	Re-covered.		

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	THUNDER BAY DIST. —Continued.														
224	Dog River Road.....					.5	24	.33	18			325 865	2 x1 2 x1½	.5	388
225	Dona-Forbes Road..	.5	66	1.75	66	1.25 1.5	26 24	3.0	24			3600 150	2½x1 2 x1		
226	Dorion Township....	4.75 2.13	br 40	ushing 2.13	.. 40	1.0 .63 .5	24 26 20	2.13	18			580	3x2	3.57	1425
227	Dorion-Sterling Bdry.	1.04	66	1.04	66	1.04	24					1320	2 x1½		
228	Gillies Township....	2.0	br	ushing	..	1.25	8	3.5	24			2243 197 205	2½x1½ 3 x1½ 3 x1	.03	60
229	Gillies-Scoble Bdry...	.25	br	ushing	..			.5	re					.13	57
230	Gorham Township....	7.0 1.50 1.5	br 25 40	ushing 1.5 40	.. 25 40	3.0	20	.75 .75 .5	16 18 20			10140 2640 600	cleaned 2½x1 3 x2	4.20	2136
231	Gorham-M c I n t y re Boundary.....	.2 3.0	40 br	.2 ushing	40	.2	26					1037	cleaned	1.0	242
232	Gorham-Ware Bdry..	.5	br	ushing	..			.5	24					.25	30
233	International High'y.	4.96	br	ushing	..	.06	26	1.0	24			160 520 3000	3½x2½ 2½x1½ cleaned	9.0	5717
234	Kakabeka-H y m e r s Road.....							7.25	re			700	cleaned	2.5	2520
235	Lybster Township....	.75 8.0	40 br	.75 ushing	40	.75 1.0 .5	20 24 26	.75	20			200	2x1	.33	250
236	Lybster-Marks Bdry.	.5	40	.5	40	.5	20								
237	Lybster-Strange Rd..	1.25	40	1.25	40	.75	26	.75	20			2650	2x1		
238	Marks Township....	3.57	br	ushing	..	1.0	24	2.51	22			7350 500	2x1 3x2	.31	250

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crushed	L covered			Wood	Stone or Conc.	Metal	Size	No.	Description		
		2		1			18x2½x1½				224
				3			24x3x2½			5000 c.yd. earth cut and	225
				3			24x2x1½				
				5			24x3x2				
				2			20x3½x2				
					2		18x2x1				
				3			16x4x3	1 Repaired.		700 c.yd. earth cut and	226
				3			16x3x3			fill.	
				5			16x3x2			Retaining wall, 250'x4' x3'.	
					2		22½x1½				227
					5		22½x1			6500 c.yd. earth cut and	228
					1		20x1¼			fill.	
					1		25x1½			377 ft. retaining wall,	
					1		20x1			3'x 4'.	
				7			18x2x2			60 c.yd. earth cut and	229
										fill.	
				4			16x2x2			190 c.yd. earth cut and	230
				9			16x3x2			fill.	
				3			18x4x3				
				3			18x3x2				
				2			18x2x2				
				2			16x5x2				
				1			20x3x2				
					3		16x3x2				
				2	repa ired						
				6			18x4x2				231
				1			20x14x8				
				3			18x3x2				232
				1			20x3x2				
		342				1	20x12"	2 30' temporary.		5471 earth cut.	233
				2			24x4x2	2 20' span.		3704 earth fill.	
				4			24x4x2½			385 c.yd. rock excav.	
				1			22x4x2½				
				1			25x4x2½				
				1			25x3½x2½				
				1			25x4x3				
		48		2	re-cov ered					1365 c.yd. earth cut and	234
										fill.	
				2			18x6x2	1 Removed.		3300 earth cut and fill.	235
				7			18x2x1				
				18			18x3x1				
				1			18x4x3				
				3			18x3x1				
				1			18x6x3				
					1		45'x2'				
				1			18x3x2				236
				5			18x3x2				237
				36			18x3x2				238

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cut- ting		Burn- ing		Stump- ing and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L ft.	W & D	L mfs.	Yards used
	THUNDER BAY DIST. —Continued.														
239	Nepigon Highway...	8.88 .25 3.5 .5 6.75	br 66 10 35 40	ushing .25 1.75	66 40	5.63	26	5.13	24			12500 4770 2970 300	2x1½ 3x2 3x1½ cleaned	10.94	8006
240	Oliver Township.....														
241	Oliver Road.....	13.5	br	ushing								1254 225 2298	2½x1 3 x1¼ cleaned	3.37	2355
242	O'Connor Township.....													.14	110
243	Pearson Township...	.25 2.6	60 40	.25 2.6	60 40	.25 1.6 1.0	26 24 20	2.38 1.0	20 18			6090	2x1½	.24	140
244	Pearson-Pardee Road	.75	50	.75	50	.75	26	.75	24	.13	10	10110 8460	3x2 2x2	1.25	1368
245	Schreiber Roads.....	.5	br	ushing				.1	24			630	3x1½	3.19	2486
246	Scoble Road.....														
247	Scoble Township....	.5 .5 .13 1.0	br 40 15 20	ushing .5 1.3 1.0	40 40 15 20	.25 .33 .13	16 26 24	.5 .75 1.38	18 16 20	.08	12	300	2x1	.5	400
248	Silver Mountain Rd..	1.5	br	ushing		1.5	12	3.5	24					5.63	4397
249	Sterling Township...	1.13	66	1.13	66	1.13	24	1.0	20			2032 6578 4620	2½x2 3 x2 cleaned	1.63	1194
250	Sunshine Road, Con- mee Township.	.31	br	ushing		.25	16	.63	24			2200 2160 600	3x1½ 3x2 3x1	1.5	1179
251	Ware Township.....	6.0 1.0 .5 1.5	br 66 40 50	ushing 1.0 .5 1.5	66 40 50	3.38 .50	24 20	1.0 .5 3.00	24 20 re	.1	10	2310 2340 6699	3x1½ 2x1 cleaned	.33 .25 .33	204 254 277
	TOTALS.....	344.13 229.61	br ushing	307.97		225.14		340.77 217.06	re	4.05	grading	984818		976.45	316287

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag- ging Miles	Other Rep'rs Miles	Culverts				Bridges		REMARKS	
Yds. crush- ed	L cover- ed			Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	32.66	.33	.....	.....	1 1 2	40'x10'' 30'x15'' 20'x18''	8	Whitewashed.	500 c.yd. rock excav. 7426 c.yd. earth cut and fill. 530 c.yd. burrow for fill. Retaining wall 110'x12'' x4 $\frac{1}{2}$ '.	239
.....	5 13 16	.....	.....	40x4x3 24x3x2 various	.....	.....	190 ft. lineal, guard rail. 465 ft. lineal, iron guard rail erected at Kaka- beka Falls.	240
.....	1.43	.....	.....	6 1	.....	25'x18'' 20'x18'' 20'x14'' 24'x15''	.....	.....	.....	241
.....	1 5	.....	2	22' span.	.....	242
.....	1	20' span.	.....	243
.....	3 10 3	.....	.....	18x4x1 $\frac{1}{2}$ 20x3x2 18x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	.....	.....	.....	.....
.....	3	.....	18x2x2	.....	.....	.....	.....
.....	1	.....	2 6 1 2 2	.....	.....	18x2 $\frac{1}{2}$ x2 18x2x2 18x5x2 $\frac{1}{2}$ 18x5x3 18x3x2	.....	.....	1200 c.yd. earth cut and fill. 420 c.yd. clay surfacing. 485 c.yd. rock excav.	244
.....	12	.....	1 4	.....	.....	18x4x4 18x2x2	1	Re-covered.	.....	245
.....	1	15' span.	.....	246
.....	1	12' span.	.....	247
.....	1 6 1 3 7 1 14 2 2	.....	.....	14x2 $\frac{3}{4}$ x1 $\frac{1}{2}$ 15x2x1 18x3x2 18x3x1 $\frac{1}{2}$ 18x2 $\frac{3}{4}$ x1 $\frac{1}{2}$ 18x4x2 22x4x2 22x3x2 18x5x3	1	30' span.	2430 c.yd. earth cut and fill.	248
.....	1	16' span. 1 14' span.	.....	249
.....	1	Re-covered.	1700 c.yd. cut and fill.	250
.....	2 1 1 3 1 4 3 3 8 3 3	.....	.....	18x3x1 $\frac{1}{2}$ 20x6x2 20x4x2 18x3x2 18x8x4 18x3x3 18x2x2 18x1 $\frac{1}{2}$ x1 18x3x2 16x2x2 20x2 $\frac{1}{2}$ x2	1	28' span. 1 12' span.	.....	251
23108	20 mls.	3851.84	77.83	1762	139	335	.....	105 80	Built. Repaired.	.....	.....

Appendix No. 48.

NORTHERN DEVELOPMENT BRANCH.

STATEMENTS FOR REPORT FOR THE YEAR ENDED 31ST OCTOBER, 1922.

SECTION 1 (D).

THE ASSISTANCE OF SETTLERS.

Re Feed Shortage.

The indifferent growing season of 1921 necessitated assistance being given to the farmers of Manitoulin Island and in the neighbourhood of Mattawa during the summer of that year; and during the succeeding fall and winter the same shortage of feed became evident in those parts of Northern Ontario west of Mattawa, and extending along the main line of the Canadian Pacific Railway to Sudbury, and along the Soo Branch as far as Walford; north from Sudbury along the Canadian Northern Railway to Hanmer; south from Sudbury along the Canadian Pacific Railway to Rutter; and south from North Bay along the Grand Trunk Railway to Powassan. This territory embraces numerous excellent farming communities, the produce from which, in normal seasons, is sufficient not only to provide for local requirements, but for considerable sale to outside points. The poor growth during 1921, however, produced such a reduced crop that fodder was not available in sufficient quantity to feed the stock which the farmers had on hand. The assistance which had been provided by the Branch to the farmers of Manitoulin Island was, therefore, extended to meet the additional needs. Sixteen distribution centres were established in the area of the shortage, at Mattawa, Eau Claire, Rutherglen, Bonfield, Rankin Siding, Warren, Markstay, Nairn Centre, Webbwood, Massey, Walford, Blezard Valley, Hanmer, Rutter, Callander and Powassan; to these points hay was shipped for sale to farmers, from other sections of the Province, at a considerable saving in cost over the prevailing local rate. The total quantity supplied amounted to 1,307 tons of hay, and 3,070 bushels of corn. Part of this was paid for in cash; the remainder was sold on guaranteed promissory notes payable in 12 months, with interest at 6 per cent. per annum. The feed supplied was of great benefit to the farmers, as it enabled them to retain their stock during the winter, instead of being compelled to dispose of them at sacrifice prices, as would otherwise have been the case.

Refunds were received during the year for cash sales and for feed previously supplied on promissory notes to the amount of \$24,287.08.

SECTION 1 (E)—CREAMERY.

NEW LISKEARD, ONT.,
November 10, 1922.

*To The Honourable Beniah Bowman,
Minister of Lands and Forests,
Parliament Buildings,
Toronto.*

DEAR SIR,—I beg to enclose report of the operations of the Government Creamery for the year ending 31st October, 1922.

For the past year we took in 347,856 lbs. of cream, made 119,278 lbs. of butter, and paid farmers for cream delivered \$35,896.83, at an average price of 38.6 cents per lb. fat. The quantity of cream received in 1922 represents an

increase over 1921 of 50,289 lbs., which would be equivalent to a gain of over 500,000 lbs. in milk produced by the dairy farmers of the district over the preceding year. The number of patrons was increased from 236 in 1921 to 319 in 1922. This development was very gratifying indeed, and our increase in butter and cream would have been somewhat greater but for the disastrous fire of October 4th, which destroyed a number of cows as well as farm buildings and feed. This year I think the farmers of this part of the district had the best crops they have had in the history of the north country, both in hay and grain. Although the latter part of the season up until the time of the fire was dry, yet the grass was quite plentiful, and the second growth of clover was nearly as good as the first. A great many of our patrons were burnt out and some even lost their lives in the fire. This will no doubt affect our winter business, which promised to be the greatest in the history of this institution. We had been working toward this end for the last five years; encouraging and educating our patrons to go in for winter dairying, and just when our hopes seemed to be fully realized with abundant crops and a great number of fresh cows, on October 4th our prospects were shattered by the great calamity that befell our district.

SUMMARY OF OPERATIONS.

FROM AUGUST 17th, 1917 TO OCTOBER 31st, 1922.

Pounds of Cream received.....	1,483,599
Pounds of Butter manufactured.....	484,156
Value of Butter.....	\$222,848.18
Paid to Patrons.....	\$195,076.31

I have the honour to be, Sir, your obedient servant,

(Sgd.) A. MACLACHLAN,
Manager.

SECTION 2 (1)—SEED GRAIN.

The shortage of the grain crop in Northern and Northwestern Ontario during 1921 necessitated an increase in the quantity of seed grain distributed in that area for spring seeding in 1922. Applications were received for upwards of 32,000 bushels of oats and 1,700 bushels of wheat. Considerable difficulty was experienced in obtaining seed oats of the necessary high quality, as the crop shortage in Ontario during the previous season had the effect of reducing the available quantity of seed grain to a minimum. This necessitated supplies being purchased from the Western Provinces, which was a departure from the usual practice of the Branch in supplying seed grain for distribution in Northern Ontario. Wherever possible, local supplies were obtained in preference to importation of Western grain.

Sixteen distribution centres were established in co-operation with the representatives of the Department of Agriculture or of this Branch. The seed was supplied either for cash or upon promissory note secured by a lien placed upon the land of the applicant. The results, in spite of the difficulties above alluded to, have on the whole proved very satisfactory, although experience has shown the advisability of sowing Ontario seed when it is available.

In some districts, particularly Manitoulin Island and in the vicinity of Sudbury, grasshoppers made their reappearance during the past season, and seriously affected the crops. A large quantity of arsenic was provided by the Branch and used in the affected areas under the superintendence and with the co-operation of the Agricultural Representatives. In other districts, however, the season proved to be an excellent one, and satisfactory crops were raised.

The total expenditure incurred in the purchase and local costs of distribution of the seed amounted to \$37,174.84.

SECTION 2 (2)—CATTLE PURCHASE.

The purchase of cows by the Branch for resale to farmers in the northern part of Temiskaming district was so successful in the year 1921, that it was found advisable to repeat the procedure this year. A further car-load was purchased in the Powassan section, consisting of an excellent grade of cattle, viz.: 19 cows, 1 bull, 3 heifers and 3 calves. The bull was sold for \$75.00, the three calves produced \$25.00; the heifers and cows realized from \$35.00 to \$115.00 each; the total returns being sufficient to repay the cost of the cattle and distribution. The advantage of this method of purchasing cows for the northern settlers by car-load lots ensures their obtaining the cattle at the lowest cost, and brings the expert judgment of the Superintendent of the Monteith Experimental Farm to the assistance of the farmers in procuring the best and most suitable type of animal for the locality.

SUMMARY OF EXPENDITURE.

FOR THE ELEVEN YEARS ENDED 31ST OCTOBER, 1922.

Northern and Northwestern Ontario Development Fund.

SECTION.	Summary of Expenditure 23rd May, 1912, to 31st Oct., 1921.	Expenditure for year ended 31st October, 1922.	Total Expenditure to 31st October, 1922.
Section 1 (a) Works and Improvements.....	\$2,100.00		\$2,100.00
Section 1 (b) Roads.....	8,369,576.78	\$1,603,148.53	9,972,725.31
Section 1 (d) Farms.....	79,968.37	30,278.16	110,246.53
Section 1 (d) Assistance of Settlers.....	60,056.87	57,841.20	117,898.07
Section 1 (e) Creamery and Grain Elevators.....	45,844.67	11,305.86	57,150.53
Section 2 (1) Seed Grain.....	190,612.63	37,174.84	227,787.47
Section 2 (2) Cattle Purchase Account.....	20,094.61	1,523.38	21,617.99
Section 2 (4) Schools and Public Buildings.....		17,353.85	17,353.85
Section 2 (6) Fire Protection.....	3,773.45		3,773.45
Returned Soldiers' and Sailors' Settlement Act, 1917.....	1,177,913.16	3,169.35	1,181,082.51
	\$9,949,940.54	\$1,761,795.17	\$11,711,735.71
Settlers' Loan Acct., Clause 9 (Amend. Act 1916).	665,176.81	248,358.12	913,534.93
	\$10,615,117.35	\$2,010,153.29	\$12,625,270.64

STATEMENT OF EXPENDITURE.

UNDER NORTHERN AND NORTHWESTERN ONTARIO DEVELOPMENT ACTS, 1912 AND 1915 AND
AMENDMENTS.

FOR THE YEAR ENDED 31ST OCTOBER, 1922.

Districts and Sections.	Expenditure, year ended 31st October, 1922.
1. Kenora.....	\$63,629.48
2. Dryden.....	72,615.36
3. Port Arthur.....	65,747.90
4. Fort William.....	98,215.42
5. Rainy River.....	94,961.19
6. St. Joseph Island.....	11,581.08
7. Sault Ste. Marie.....	169,625.13
8. Sudbury.....	74,343.23
9. Nipissing.....	85,253.19
10. Parry Sound.....	76,824.11
11. Muskoka.....	103,673.80
12. Renfrew.....	17,899.82
13. Manitoulin Island.....	76,127.87
14. Temiskaming.....	565,100.34
15. General Administration.....	27,550.61
	\$1,603,148.53
16. Farms.....	30,278.16
17. Assistance of Settlers.....	57,841.20
18. Creamery.....	11,305.86
19. Seed Grain.....	37,174.84
20. Cattle Purchase.....	1,523.38
21. Schools and other Public Buildings.....	17,353.85
22. Returned Soldiers' and Sailors' Settlement Account.....	3,169.35
23. Settlers' Loan Account.....	248,358.12
TOTAL.....	\$2,010,153.29

STATEMENT OF EXPENDITURE.

YEAR ENDED, 31ST OCTOBER, 1922.

Making of Roads, Section 1 (b):

Bruce, A. E. D., Secretary and Accountant, salary.....	\$3,450.00	
Sinton, Jas., Road Engineer, salary.....	2,700.00	
Beardall, F. G., Principal Clerk, salary.....	2,300.00	
Lawer, W. L., Senior Account Clerk, salary.....	2,100.00	
Reid, A., Map Draughtsman, salary.....	1,800.00	
Dicker, C. L., Clerk, salary.....	1,500.00	
Fleming, Miss E., Clerk, salary.....	1,300.00	
Carefoot, Miss O., Clerk-Stenographer, salary.....	1,100.00	
		\$16,250.00
Wages.....	\$ 911,923.04	
Contracts.....	239,329.14	
Supplies, Equipment and Services.....	435,646.35	
		<u>1,586,898.53</u>
		\$1,603,148.53

Advancement of Settlement and Colonization, Section 1 (D):

Wages.....	\$3,610.53	
Purchase of Land.....	24,800.00	
Supplies, Stock and Equipment.....	1,867.63	
		<u>30,278.16</u>

Assistance of Settlers, Section 1 (D):

Hay, Oats, Corn, Freight, Services and Disbursements.....	57,841.20
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Creamery, New Liskeard, Section 1 (E):

Wages.....	\$4,679.96	
Supplies, Equipment, Freight and Expenses.....	6,625.90	
		<u>11,305.86</u>

Seed Grain, Section 2 (1):

Wages.....	\$324.50	
Seed, Freight, Services and Disbursements.....	36,850.34	
		<u>37,174.84</u>

Cattle Purchase Account, Section 2 (2):

Cost of Cattle, Freight and Disbursements.....	1,523.38
--	----------

Schools and other Public Buildings, Section 2 (4):

Continuation School, New Liskeard, contracts for erection, heating, etc.....	\$15,912.86	
Material and Supplies.....	1,440.99	
		<u>17,353.85</u>

Returned Soldiers' and Sailors' Land Settlements Act, 1917:

Services, Repairs and Disbursements.....	3,169.35	
		<u>\$1,761,795.17</u>

Settlers' Loan Account, Amending Act, 1916:

Dane, F., Commissioner, salary.....	\$5,000.00	
Kennedy, W. K. P., accountant, salary.....	2,700.00	
Crawford, G., Stenographer, salary.....	1,050.00	
		<u>\$8,750.00</u>
Net amount of loans issued.....	\$237,255.00	
Expenses.....	2,353.12	
		<u>239,608.12</u>
		<u>248,358.12</u>
		<u>\$2,010,153.29</u>

NORTHERN DEVELOPMENT BRANCH.

STATEMENT OF REVENUE FOR THE YEAR ENDED 31ST OCTOBER, 1922.

<i>Section 1 (B) Roads:</i>	
Sale of Supplies, Stock and Equipment, Rentals and Refunds.....	\$3,008.13
<i>Section 1 (D) Farms:</i>	
Sale of Produce and Cartage.....	1,836.15
<i>Section 1 (D) Assistance of Settlers:</i>	
Cash Sales of Feed and Notes retired.....	24,287.08
<i>Section 1 (E) Creamery:</i>	
Butter Revenue, Sale of Buttermilk, Cans, etc.....	7,521.08
<i>Section 2 (1) Seed Grain:</i>	
Cash Sales and Notes retired.....	19,338.83
<i>Section 2 (2) Purchase of Cattle Account:</i>	
Cash Sales and Notes retired.....	2,826.84
<i>Clause 5 (1-12) Soldiers' Settlement Account:</i>	
Note retired and Sale of Stock, Kapuskasing Colony.....	18,110.46
	<hr/> \$76,928.57
<i>Settlers' Loan Account:</i>	
Payments on Principal, Interest, etc.....	84,096.98
Total Revenue under all heads, 1922 account.....	<hr/> \$161,025.55

RECORD OF CORRESPONDENCE.

FOR YEAR ENDED 31ST OCTOBER, 1922.

Letters received.....	9,742
Letters mailed.....	10,712
Circulars mailed.....	652
	<hr/> 11,364

November 16, 1922.

ARTHUR E. D. BRUCE,
Secretary and Accountant.

Appendix No. 49.

46 RICHMOND STREET WEST,
TORONTO, January 10th, 1923.

To the Honourable, the Minister of Lands and Forests.

DEAR SIR,—I have the honour to herewith submit a report of the business of this Department to the end of October, 1922, as follows:—

Total number of applications received, 3,871. These applied for loans amounting to \$1,554,800.00, being an average application of \$392.47.

Consideration of each application being on its own merits, and the basis, as usual, on which the loans have been advanced was that of the actual improvements to land.

The total number of loans granted to settlers being 2,549, amounting to \$860,235.00, being an average loan of \$323.40. This amount includes a loan to the Sudbury Co-Operative Creamery Co., Ltd., of \$24,000.00, and a loan of \$10,000.00 to the Kenora Dairy Co-Operative Association; also \$3,500.00 to the Producers Co-Operative Creamery Co., Ltd., of Lavallee, District of Rainy River.

It is a pleasure to refer to the manner in which repayments on account of

loans have been met; being 89.16% on account of interest, and 90.83% on account of principal. The repayments on principal include some loans paid in advance.

From information received from the several districts, the Department learns that settlers are giving more attention to the development of their own lots than in former years, and seem more anxious than ever to get themselves in a position to carry stock.

During the year there have been many expressions of appreciation of the service that the loan has been to settlers.

All of which is respectfully submitted.

F. DANE,
Settlers' Loan Commissioner.

Memorandum of Settlers' Loans to October 31st, 1922.
Applications.

Total number of applications received.....	3,871
Total amount applied for.....	\$1,554,800.00
Average per application.....	392.47
Amount applied for under approved applications.....	1,070,810.00

Loans.

Number of loans issued.....	2,549
Equal to 66% of applications.....	
Amount granted.....	\$860,235.00
Equal to 55% of total amount applied for and	
Equal to 80% of total amount applied for under approved applications.	
Average loan.....	\$323.40
Total acreage covered by liens.....	387,443
Acreage improved land.....	56,120
Equal to 14% of total acreage.	
Average loan per acre on total acreage.....	\$2.12
Average loan per acre on acreage improved land.....	\$14.66

Note.—Figures, except averages, include application for, and loan of \$24,000.00 to Sudbury Co-operative Creamery Co., Ltd., \$10,000.00 to Kenora Dairy Co-operative Association, and \$3,500.00 to the Producers Co-operative Creamery Co., Ltd., Lavalley, Ont., District of Rainy River..

Repayments.

Accrued interest due.....	\$122,028.78
Accrued interest received.....	108,812.29 or 89.16%
Payments on principal due.....	278,273.16
Payments on principal received.....	252,759.23 or 90.83%
Total payments due.....	400,301.94
Total payments received.....	361,571.52 or 90.32%

Details of Loans Issued and Outstanding.

District.	No. of Loans.	Amount.	Unpaid Principal and Accrued Interest.
Algoma.....	72	\$22,460.00	\$19,965.73
Kenora.....	257	94,120.00	74,732.48
Manitoulin.....	10	3,850.00	3,800.00
Nipissing.....	140	49,545.00	39,821.12
Rainy River.....	204	67,350.00	45,911.56
Sudbury.....	136	75,500.00	61,623.18
Temiskaming.....	1,083	336,705.00	223,320.87
Thunder Bay.....	647	210,705.00	151,517.32
Totals.....	2,549	\$860,235.00	\$620,692.26

Appendix No. 50.

REPORT OF FORESTRY BRANCH, 1922.

SIR,—The report of the work of this Branch for the year ending October 31st, 1922, is given under the sections of Forest Fire Protection, Forest Investigations, Reforestation and Forest Pathology.

I.—FOREST FIRE PROTECTION.*(1) Legislation.*

The Forest Fires Prevention Act has not been changed since 1918. Experiences since then have indicated, however, that certain amendments are desirable. The lack of compulsory fire-fighting, and jail sentences as well as fines for certain infringements of the Act, are particularly felt.

(2) Organization and Personnel.

The supervision of the field force was carried on by one Forest Supervisor with headquarters at Kenora, one Fire Inspector with headquarters at Cochrane, one Assistant Superintendent of Fire Ranging and one Fire Inspector with headquarters at Sudbury, and three District Foresters, each with a Forest Assistant, with headquarters at Parry Sound, Pembroke and Tweed. The District Foresters and Forest Assistants are all technical foresters.

A rearrangement of Chief Ranger Districts was made, whereby one new district was created, and two old districts abolished, the territory in these being divided among the adjoining districts. In addition to this, the country south of the French River and Lake Nipissing, and within the Fire District, was divided into three Forest Districts, each in charge of a District Forester, who was directly responsible for the fire protection in his district.

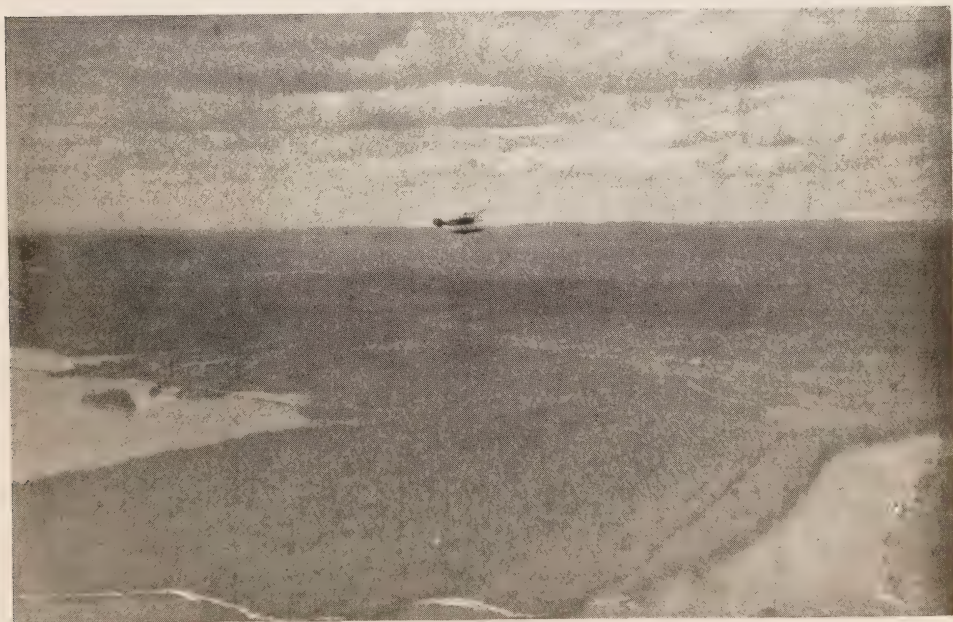


Fig. 1.—Aircraft patrolling forest in Algonquin Park.

There were on duty a total of thirty Chief Rangers and sixty-two Deputy Chief Rangers, allowing direct field supervision of one Deputy or Chief Ranger to every eleven Rangers.

The average daily force was as follows: April, 29; May, 595; June, 1,053; July, 1,054; August, 1,024; September, 463; October, 70. The largest number of men on duty at any one time, including ninety-two Chief and Deputy Chief Rangers, was 1,067.

As a result of the fire season being early, there were 595 men on duty by the middle of May, and at the end of the month 1,002. On the 15th of June, the total number was 1,052; on the 13th of June, 1,065; on the 15th of July, 1,054; on the 31st of July, 1,044; on the 15th of August, 1,040. It was possible to discontinue some patrols during the last days of August so that by the end of the month the total number on duty was 980. By the middle of September the number had been reduced to 545, and at the 1st of October to 101. On the 15th of October there were 44 men on the pay roll.

One of the greatest drawbacks to proper forest fire protection in Ontario is the impermanency of the personnel. Fire ranging is a specialized line of work, requiring special training, and until a permanent staff is built up, whereby the chief and deputy chief rangers at least may be put on a permanent basis, the organization will not have the degree of efficiency which is desired. A ranger school where these men could be given from one to three months' special training each year would also aid materially.

(3) *Expenditure.*

The expenditure for the fiscal year was \$643,902.63, classified as below, with the figures for the preceding years given for comparison. Against this expenditure, protection accounts for the year totalled \$309,938.40.

CLASSIFICATION OF EXPENDITURE.

ITEM.	1922	1921	1920	1919
Pay roll.....	\$417,023.88	\$433,463.02	\$398,919.61	\$405,212.30
Equipment.....	44,504.49	28,384.40	22,287.83	22,899.02
Expendable property.....	3,048.16	19,505.86	16,589.99	13,903.06
Travel (inspection).....	23,088.33	21,034.95	17,495.93	15,826.37
Improvement work.....	40,999.77	3,621.06	1,591.01	4,765.35
Extra fire fighting.....	40,969.67	65,267.79	41,491.24	58,863.92
Express, postage, etc.....	9,561.17	7,926.65	5,401.02	5,646.47
Air patrol.....	23,437.84	.....	.....	.....
Repairs, upkeep, etc.....	17,670.45	.....	.....	.....
Miscellany.....	23,598.77	31,331.01	2,331.08	5,955.02
Total.....	\$643,902.63	\$610,534.74	\$506,107.71	\$528,071.51

(4) *Fires.*

The spring of 1922 was fairly wet up until about the last week in April, when, in some districts the weather turned warm and dry and continued so until after the 1st of June, and as a result, some of the worst fires of the season occurred during the month of May. During the summer there were short periods of hot dry weather, but these were almost invariably followed by enough precipitation to relieve, in many instances, very serious conditions. The latter part of September was extremely dry and hot, and serious fires occurred.

CLASSIFICATION OF FOREST FIRES.

BY MONTH.

MONTH.	1922	1921	1920	1919	1918	1917
	No.	No.	No.	No.	No.	No.
April.....	35	5	...	...	...	...
May.....	280	296	1* 422	362	294	449
June.....	194	290	309	414	273	320
July.....	77	475	142	613	124	158
August.....	212	97	300	377	268	117
September.....	121	105	2* 114	14	6	66
October.....	102	1	...	...	...	...
Totals.....	1,021	1,269	1,287	1,780	965	1,110

1* April and May.

2* September and October.

BY ORIGIN.

ORIGIN.	1922		1921	1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Settlers.....	164	16.1	9.6	11.0	7.7	8.1	8.2
Campers.....	122	11.9	8.8	11.7	9.2	9.7	13.9
Railways.....	166	16.3	14.8	23.9	37.0	46.5	49.5
Lightning.....	52	5.1	11.0	1.1	3.0	3.8	2.9
Logging operations.....	42	4.1	5.0	4.6	2.5	4.1	4.1
Miscellaneous.....	8	.8	1.1	7.2	4.3	4.6	3.6
Unknown.....	467	45.7	49.7	40.5	36.3	23.2	17.8
	1,021	100.0	100.0	100.0	100.0	100.0	100.0

BY SIZE.

SIZE.	1922		1921	1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Quarter acre and under.....	242	23.7	20.8	23.2	30.5	40.5	36.3
Over quarter to 5 acres.....	297	29.1	24.0	29.4	27.7	33.7	19.5
Over 5 to 10 acres.....	64	6.3	6.8	8.1	6.1	6.0	4.8
Over 10 to 100 acres.....	196	19.2	20.4	17.1	16.5	13.6	9.5
Over 100 to 500 acres.....	129	12.6	13.3	12.0	8.7	5.1	4.7
Over 500 acres.....	...	...	...	...	...	1.1	25.2
Over 500 to 1,000 acres.....	37	3.6	5.5	5.0	3.3	...	...
Over 1,000 to 10,000 acres...	50	4.9	8.1	4.9	5.9	...	...
Over 10,000 acres.....	6	.6	1.1	.3	1.3	...	...
	1,021	100.0	100.0	100.0	100.0	100.0	100.0

Of the total number of fires, settlers were responsible for 164 or 16.1 per cent., a slight increase over previous years. Of this number, 36 were permit fires which got beyond control.

During the season three convictions were secured for carelessness in allowing fires to run, one for burning without a permit, and two for operating open burners in connection with sawmills.



Fig. 2.—Aircraft, landing in Algonquin Park.

The number of fires known to be caused by campers was 122, or 11.9 per cent. of the total. Special efforts were made to trace the parties responsible for some of these fires, but it was found impossible to get sufficient evidence to warrant court proceedings.

Railways are known to have caused 166 fires, or 16.3 per cent. of the total. This is slightly above the total for 1921, but the general trend in the number of railway fires is downward. Although the attention given by our locomotive inspectors to the fire protective appliances on locomotives has been responsible for a decrease in the number of railway fires, much credit must also be given to the co-operation between our own field organization and that of the railway companies.

The fires of railway origin were distributed as follows:

RAILWAY.	Per cent. of Total Number of Railway Fires.				
	1922	1921	1920	1919	1918
Canadian National Railway (exclusive of northern lines)...	25.9	44.7	32.3	24.6	25.4
Canadian Pacific Railway.....	25.3	29.8	27.9	26.3	24.9
Canadian National Railway (northern transcontinental line only).....	13.3	7.9	16.4	25.9	21.8
Temiskaming and Northern Ontario Railway.....	14.5	10.6	9.9	17.9	10.5
Algoma Eastern Railway.....	2.4	2.8	5.0	0.3	2.9
Algoma Central Railway and Hudson Bay Railway.....	8.4	1.0	4.4	1.5	1.1
Grand Trunk Railway.....	10.2	3.2	4.1	3.5	13.4
	100.0	100.0	100.0	100.0	100.0

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE.

RAILWAY	1922	1921
Canadian National Railway (exclusive of northern lines).....	2.9	5.8
Canadian Pacific Railway.....	2.7	3.9
Canadian National Railway (northern transcontinental line only).....	2.4	1.8
Temiskaming and Northern Ontario Railway.....	7.3	6.3
Algoma Eastern Railway.....	4.5	5.9
Algoma Central and Hudson Bay Railway.....	4.2	0.6
Grand Trunk Railway.....	4.5	1.6
Total.....	3.3	3.7

Lightning was reported as having started 52 fires, or 5.1 per cent. of the total number. Of this total 29 were in the Algonquin District.

Logging operations were credited with having started 42 fires, or 4.1 per cent. of the total, and 8 fires were due to miscellaneous causes.

A total of 1,021 fires were reported, with an area burned of 346,193 acres, the lowest figures since 1918. Of this total, 539 fires or 52.8 per cent., were confined to areas of 5 acres or less in extent, and 78.3 per cent. of the total to areas of 100 acres or less. The fires which burned areas of more than 500 acres were almost entirely in logged-over regions where the logging slash made fire fighting almost impossible.

CLASSIFICATION OF BURNED-OVER AREA.

FOREST CONDITION.	1922.		1921.	1920.	1919.	1918.	1917.
	Acres.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land.....	46,395	13.4	13.2	14.7	26.8	15.8	19.1
Cut-over land (some timber left).....	70,109	20.2	25.5	38.8	27.3	37.0	39.2
Young growth (below six inches).....	87,123	25.2	20.2	26.7	25.3	23.5	19.5
Barren and grass land.....	142,566	41.2	41.1	19.8	20.6	23.7	22.2
	346,193	100.0	100.0	100.0	100.0	100.0	100.0

As is shown in the above table, the area of timber land burned over was 13.4 per cent. of the total area burned. While the per cent. of the total is about the same as in 1921, the area was only 46,395 acres as against 99,104 acres in 1921.

Land which had been cut over, but upon which there was still some timber standing, totalled 70,109 acres, or 20.2 per cent. of the total, and land upon which some young growth existed totalled 87,123 acres, or 25.2 per cent. of the total, while in 1921 these figures were respectively 190,977 acres, or 25.5 per cent. and 151,700 acres, or 20.2 per cent. The need of protection on these two classes of land can not be too strongly emphasized, as it is to just such land that we must look for our next timber crop.

The area of barren and grass land burned totalled 142,566 acres, while in 1921 the total was 307,753 acres.

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1922.

RANGER DISTRICT.	Number of fires	Timber land, mainly coniferous, i.e., soft-wood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate—										
1. Kenora.....	16	5	.....	205	11	1,851	260	1,100	.....	3,432
2. Rainy River.....	26	6	5	.....	185	5	350	585	.....	1,136
3. Thunder Bay.....	82	594	62	7,420	190	2,494	1,679	5,269	321	18,029
4. Nipigon.....	20	1,395	.....	.....	.....	1,303	381	22,160	.....	25,239
5. C. G. R.—Western.....	24	150	1	.....	.....	.....	.....	19	.....	170
6. C. G. R.—Central.....	7	12,040	5,344	.....	.....	3,037	2,120	1,546	1	24,088
	175	14,190	5,412	7,625	386	8,690	4,790	30,679	322	72,094
II. Northern Inspectorate—										
1. C. G. R.—Eastern.....	13	.....	.....	.....	.....	1	.....	162	.....	163
2. Hearst.....	19	105	.....	95	16	33	.....	51	8	308
3. Kapuskasing.....	9	.....	.....	5	20	76	.....	265	.....	366
4. Cochrane.....	32	230	.....	139	5	47	41	229	11	702
5. Abitibi.....	6	.....	.....	.....	.....	60	20	1,006	.....	1,086
6. Timmins.....	24	2	.....	59	.....	4	.....	7	5	77
7. Matheson.....	1	.....	.....	.....	.....	.....	.....	2,000	.....	2,000
	104	337	.....	298	41	221	61	3,720	24	4,702
III. Central Inspectorate—										
1. Soo.....	11	.....	.....	70	450	5	40	641	5	1,211
2. Webbwood.....	47	52	5	.....	1,730	10	2,508	3,214	1,194	8,713
3. Sudbury.....	65	3,243	23	755	47	588	4,787	14,783	1,637	25,863
4. North Bay.....	54	7,651	205	2,711	19,351	2,901	920	29,424	20	63,183
5. Mississagi.....	3	.....	.....	600	600	.....	15	6	.....	1,221
6. Chapleau.....	15	1,000	200	960	900	5,443	11,017	823	.....	20,343
7. Longlac.....	36	10,402	10	561	.....	21,779	1,990	4,637	.....	39,379
8. Foleyet.....	39	5	.....	6,267	1,500	187	296	1,449	.....	9,704
9. Timagami, West.....	5	961	.....	6,720	.....	.....	.....	250	.....	7,931
10. Timagami, East.....	60	706	70	224	265	248	1,945	830	109	4,397
11. Timagami, North.....	23	233	.....	1,775	1,140	4,031	3	7,146	6,150	20,478
12. Algoma Central.....	36	17	53	1,250	62	181	316	555	16	2,450
	394	24,270	566	21,893	26,045	35,373	23,837	63,758	9,131	204,873

IV. Georgian Bay Forest District—

1. Georgian Bay, West.....	70	14	6	354	496	56	2,168	642	38	3,774
2. Georgian Bay, East.....	41	113	155	3,952	1,016	1	1,750	925	189	8,101
	111	127	161	4,306	1,512	57	3,918	1,567	227	11,875
V. Algonquin Forest District—										
1. Algonquin North.....	58	130	.....	1,631	408	209	580	10,696	55	13,709
2. Algonquin South.....	76	17	12	851	3,700	1,465	2,073	18,913	400	27,431
	134	147	12	2,482	4,108	1,674	2,653	29,609	455	41,140
VI. Trent Forest District—										
1. Trent.....	52	531	136	432	561	350	2,346	1,100	714	6,170
2. Madawaska North.....	15	304	110	325	10	428	50	455	225	1,907
3. Madawaska South.....	36	40	52	55	30	5	2,670	482	98	3,432
	103	875	298	812	601	783	5,066	2,037	1,037	11,509
Totals.....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
Per Cent.....	.....	11.5	1.9	10.9	9.5	13.5	11.64	37.9	3.2	100.0
1921 Totals.....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 Totals.....	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 Totals.....	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 Totals.....	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals.....	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164



Fig. 3.—Unloading fire pump and hose from aircraft.



Fig. 4.—Steel lookout tower on left. Wooden tower on right.

(5) *Permits.*

Permits were issued in 189 townships, as compared with 139 townships in 1921, 123 townships in 1920, and 136 townships in 1919. A total of 8,603 permits were issued, covering an area of 29,455 acres.

As in previous years, the greatest number of permits were issued in the Districts of Cochrane, Matheson and Hearst. The bulk of the permits, 3,034, were issued in June, with 1,992 in May, 1,580 in August and 1,502 in July.

STATEMENT OF PERMITS ISSUED.

RANGER DISTRICT.	NUMBER OF PERMITS.					
	1922	1921	1920	1919	1918	1917
Cochrane.....	2,497	1,503	1,982	2,275	3,493	....
Matheson.....	2,126	1,599	1,887	1,691	2,346	....
New Liskeard.....	....	916	1,169	1,557	2,179	....
Hearst.....	1,774	1,082	756	702	514	....
Timmins.....	754	407	193	199	651	....
All other districts.....	1,452	459	167	211	407	....
Totals.....	8,603	5,966	6,154	6,635	9,590	3,486

MONTH.	NUMBER OF PERMITS.					
	1922	1921	1920	1919	1918	1917
May.....	1,992	1,154	1,003	1,536	2,248	....
June.....	3,034	3,085	2,011	2,786	2,899	....
July.....	1,502	364	891	496	2,050	....
August.....	1,580	1,329	1,620	1,475	2,156	....
September.....	495	34	629	342	237	....
Totals.....	8,603	5,966	6,154	6,635	9,590	3,486

RANGER DISTRICT.	ACREAGE BURNED OVER UNDER PERMIT.					
	1922	1921	1920	1919	1918	1917
Cochrane.....	8,108	4,652	4,984	5,437	10,267	....
Matheson.....	7,613	5,442	5,427	4,760	7,371	....
New Liskeard.....	....	7,726	9,768	13,521	17,863	....
Hearst.....	3,837	2,124	1,478	1,379	1,134	....
Timmins.....	2,591	988	424	925	1,971	....
All other districts.....	7,306	2,746	686	768	1,072	....
Totals.....	29,455	23,678	22,767	26,790	39,683	15,186

(6) *Equipment.*

The amount of equipment required to outfit the ranging staff is necessarily large. Replacements must be made each year, and additional equipment added for use on new patrols and to increase the efficiency on old patrols.

A total of 116 tents were purchased in 1922. These were the ordinary style of tent, and used mostly where the rangers must carry their shelter from place to place along their routes.

In a large part of the Province the only means of travel is by water, and for this purpose fifty-three new canoes and three power boats were added to the equipment. The boat best suited to the requirements is the lumberman's pointer equipped with a six or twelve horse power motor. These boats are strong, seaworthy, and will make a speed of from seven to ten miles per hour.

A large number of the chief rangers are also ex-officio officers of the Board of Railway Commissioners. These men act as local fire inspectors over railway lines in their districts which are under the jurisdiction of the Railway Commission, on a co-operation basis, and are supplied in most cases with railway motor cars. These cars are indispensable for inspection work, and in those districts where the train service is infrequent, afford an excellent means of transportation, not only for the chief ranger, but for fire fighting equipment as well. Seven of these cars were purchased during the season.

Portable forest fire fighting units have proved to be the most valuable part of our equipment. The unit consists of a small pump driven by a 5-6 horse power gasoline motor, all mounted on a metal base, and capable of throwing a good stream of water at the end of fifteen hundred or two thousand feet of hose. The unit itself weighs about one hundred and twenty pounds and can be transported without difficulty, either by canoe or back-pack. An unlined one and one-half inch linen hose is used, in one hundred foot lengths, weighing about twenty pounds per hundred feet. These pumps have been operated continuously for as much as fourteen hours, and have been estimated to be equal to forty men. Sixteen units were purchased at the beginning of the season, and it is desirable that at least as many more may be procured for next season.

In the more settled parts of the fire districts light motor trucks can be used to good advantage, not only for inspection purposes, but for the transportation of fire fighting equipment. Two such trucks were purchased.

For use by the rangers and emergency fire fighting, one thousand blankets were added to the equipment.

(7) Locomotive Inspection under Board of Railway Commissioners.

No change was made in the organization of the inspection of fire protective appliances on railway locomotives, two inspectors devoting their whole time to this work.

LOCOMOTIVE INSPECTION, 1922.

RAILWAY	Number Inspected					Total No. Engines	Total Number Inspections						Inspections Showing Defects	Percentage Defective					
	Times						1922	1921	1920	1919	1918	1917		1922	1921	1920	1919	1918	1917
	1	2	3	4	5 & over														
	161	98	66	44	16	385	815	723	660	499	448	328	48	5.8	8.3	18.8	29.9	36.4	19.5
C.P.R.....	73	50	36	23	12	194	440	498	351	317	232	154	16	3.6	9.7	7.9	15.5	22.4	39.6
C.N.R.....	87	52	14	2	...	155	241	242	226	155	184	60	8	3.3	1.7	4.8	11.0	28.3	20.0
G.T.R.....	4	2	8	2	1	17	45	35	25	23	36	37	1	2.2	22.8	12.0	13.0	38.8	45.9
A.C. & H.B.R.....	2	2	1	...	2	7	22	28	26	18	20	36	...	.....	21.4	46.1	16.7	70.0	55.5
A.E.R.....	327	204	125	71	31	758	1,563	1,526	1,288	1,012	920	615	73	4.6	8.3	12.8	21.8	32.1	28.3

A total of 49 round-houses and gravel pits were visited, and 1,563 locomotive inspections made, covering 758 locomotives. In addition to this 9 inspections of locomotives operated by lumber companies were made, bringing the total number of inspections up to 1,572. The above table shows that the number of inspections has increased each year, and the percentage of locomotives found defective has steadily decreased from 32.1 per cent. in 1918 to 4.6 per cent. in 1922.

The average cost per inspection in 1922 was \$1.61, as compared with \$1.70 in 1921, \$1.86 in 1920, and \$2.07 in 1919.

(8) *Improvements.*

The improvements carried out during the season consisted of the construction of cabins, store houses, lookout towers, telephone lines, the cutting of new and the cleaning out and improving of old roads and trails. Most of the work was done by the rangers themselves.

It is necessary each spring to clear all existing roads and trails of debris which has accumulated during the winter months, and in a burned-over section this is often an arduous task. It is, however, one of the first duties of the rangers as a good rail is most necessary in transporting equipment in case of fire. Several hundred miles of roads and trails are cleaned out each year and repaired where necessary. Landing docks are built for boats and canoes, camping grounds made in safe places, and signs put up directing travellers to these camp sites.

In some districts it is possible to assign rangers to permanent headquarters, and here cabins are often built as they add to the comfort of the men and provide a safe place for the storage of equipment. Storehouses are also built at the headquarters of the chief and deputy chief rangers for the storage of emergency equipment during the fire season, and all field equipment during the winter months. Where boats or motor cars are used it is necessary to build shelters for them. There were built during 1922, 38 cabins, 3 storehouses, 1 car house, 1 boathouse, 2 oil houses for the storage of gasoline and oil, and 2 kitchens for cabins already constructed.

The construction of lookout towers was continued and seventeen wooden and eleven steel towers erected. The wooden towers were built almost entirely by ranger labour, and are from twenty-five to eighty feet in height. The steel towers are eighty feet in height, of much the same type as the ordinary windmill tower, but are surmounted by an eight foot octagonal cabin fitted with windows on all sides. The ranger, who is stationed in the cabin during the hazardous part of the day, has an uninterrupted view of the surrounding country, and on clear days has little difficulty in locating smoke twenty miles away. These towers are connected by telephone lines to the deputy or chief ranger's headquarters, so that fires observed may be reported immediately.

Telephone Lines.—Considerable progress was made in the construction of telephone lines during the season, a total of 171½ miles being completed. Included in this total were the following:—

Gogama to Mattagami Post in Mattagami Township.....	18	miles
Milnet to Frederick Lake in Stobie Township.....	28	"
Chudleigh to Upper Goose Falls on the Sturgeon River in Sheppard Township.....	30	"
Brule Lake to lookout tower in Osler Township with branch to lookout tower in Biggar Township.....	50½	"
Whitney to south end Opeongo Lake in Sproule Township.	15½	"
Pakesley to lookout tower south of Key Junction.....	11	"
Apsley to lookout tower in Methuen Township.....	7	"

These lines make it possible for the rangers in the district to report fires promptly, and to call for assistance without wasting valuable time in travelling to the nearest point where help is available. They also enable the officer in charge to keep informed as to the exact conditions existing in the district at any time.

(9) *Air Patrol.*

Aircraft for forest fire detection were used this season for the first time. The operation was carried on in co-operation with the Dominion Air Board and proved highly satisfactory. A main base was established at Whitney, a station on the Grand Trunk Railway in Algonquin Park and a sub-base at Parry Sound, the patrols covering the Districts of Parry Sound and Muskoka, Algonquin Park and the adjacent country. This territory lends itself admirably to the use of sea-planes or flying boats and this type of machine was used. Patrols were carried on from May 23rd to October 4th with a total of 613.8 flying hours. Usually only one flight was made over the territory each day, but when conditions warranted, two flights were made. Fires were reported by dropping messages, by landing at some point where telephone or telegraph communication was possible, or when the machine returned to its base.

The season's operations have clearly demonstrated that for similar country, aircraft have no equal for sighting and locating forest fires. From a height of five or six thousand feet the smoke of a camp fire can be seen for several miles, and located within one-quarter of a mile by an experienced observer. When bad fires occur the chief ranger is able, by flying over the area, to place his men to greater advantage, and when a patrol is finished the officer in charge of the district knows the exact condition of fires throughout his territory. The moral effect on the people within the patrol area is also of great importance.

In addition to the locating of fires, the machines were used for transporting fire fighting equipment to fires in remote areas, for mapping forest types, and for taking photographs of particular areas.

II.—FOREST INVESTIGATION

During the past season two large forest survey projects were undertaken.

The first area covered about 13,500 square miles of the lower watersheds of the Abitibi, Mattagami and Moose Rivers. This area, little known except along the main waterways, was mapped from aircraft, working in conjunction with ground parties. A detailed report is appended herewith.

Another large area of 4,000 square miles in extent forming a portion of the upper watershed of the Missinaibi and Kapuskasing Rivers was done with aircraft and ground parties. A detailed report of this survey is not yet available, but the following is a classification of the forest conditions on the above survey.

1. Timber.....	1,828 sq. miles
2. Immature Growth	
(a) Above 5 inches D.B.H. but below merchantable.....	152
(b) Below 5 inches D.B.H.....	1,602
	————— 1,755 „ „
3. Barren.....	101 „ „
4. Water.....	306 „ „
	————— 3,990 „ „

ESTIMATE OF THE TIMBER.

1. Pulpwood—cords		
Spruce.....	3,700,000	
Balsam.....	900,000	
Poplar.....	1,600,000	
	<hr/>	6,200,000
2. Ties.		
Jack Pine.....		33,000,000
3. Lumber—board feet.		
White Pine.....	56,000,000	
Red Pine.....	27,000,000	
	<hr/>	83,000,000

AIR AND GROUND REPORT OF THE JAMES BAY FOREST SURVEY MADE IN 1922
UNDER SUPERVISION OF R. N. JOHNSTON, FORESTER.

I. AREA.

The James Bay survey covered the territory north of the Canadian Government Railway (Transcontinental) from Quebec boundary westward to Moose and Mattagami rivers and including their west banks to a depth of five miles. The area involved was around 13,500 square miles or, 8,640,000 acres.

II. OBJECT.

The purpose of the survey was to obtain an estimate of the forest resources, and a map showing forest types and conditions, together with supplemental information on physiographic features.

III. PROCEDURE.

1. *Aerial Type Mapping*:

In view of (a) the inaccessible nature of the country, (b) the shortness of the working season (less than 100 days possible) and (c) the desire to complete the work within one season, it was planned to use aircraft to delimit timber types and thus avoid the examination by the estimating party of waste areas and areas of non-commercial timber. The contract for flying was awarded to the Laurentide Air Service who established an air station at Remi Lake, 55 miles west of Cochrane in Fauquier Township and supplied 342 flying hours between June 2 and October 3.

The subdivision of a forest area into types by the use of aircraft, can be carried out either (a) by the records of observations made during flight by an observer (by a direct method), or (b) by the use of photographs which are afterwards related and interpreted (indirect).

(a) *Direct Mapping*.—While the direct method as above defined may very conceivably lead in its further developments to complex methods with a considerable use of instruments, as yet it consists essentially in sketch mapping the information required as directly observed while in flight. The requirements for satisfactory results by this method may be discussed under two heads (a) Machines (b) Observers and their equipment.

Machines.—The machines used in the past season and in 1921 in this work, while of different types, including the H.S.2.L., F.3., Vickers Viking, and Loening Air Yacht have been alike in that in all of them the observer's cockpit is placed directly in the nose or front of the machine. It is believed that this position for observation purposes can hardly be improved on.

The correct choice of machine to use is a matter having the greatest bearing on the cost and results of the work. The requirements as regards performance of machines will of course vary for different classes of work and in different localities. But, in general, rapid climb is of great advantage as tending to conserve flying time. Also a machine capable of high speed is more independent of wind conditions and can with equal fuel capacity operate successfully from the same base over a much larger area than a slower type. While actually typing, however, it is found that when flying between 2,500 and 4,000 feet—which is a satisfactory height from which to identify tree growth—the ground speed of the machine should not exceed 85 miles per hour. By ground speed is meant the speed at which the machine passes over the ground; it does not correspond with the speed shown by the air speed indicator of the machine but is greater or less depending on the influence of the wind.

Observers.—This season there were two foresters with previous experience both in flying and mapping, while a third was trained during the progress of the work. Observers, to produce reliable type maps should have comfortable working conditions in the machine, complete unconcern about the pilot and machine, and the best base maps available.

The quality of the map produced depends most largely on the experience and judgment of the individual observer. This should not be confined entirely to aerial experience, but should be checked by comparing aerial observation with ground study of forest conditions. Too much stress cannot be laid on this phase of the observer's work, and during the past season, whenever feasible, landings were made as a regular part of the procedure in order to allow the observer to investigate any stand of peculiar appearance, or to refresh his memory as to the actual conditions of more familiar types. It was found also in this connection that ground studies were of more value when made by the observer in person rather than through the study of strip tallies, descriptions, etc., however full and precise.

Base Maps.—Finally the field sheet on which the observer does his sketching should contain as much survey data as possible. This is even more necessary in the air than in the same class of work on the ground, since it is not practicable with the existing aerial instruments, to locate or orient the map in flight by travelling on a known course for a known distance. Consequently the observer is dependent for his location and judgment of distance and direction on the detail of his base map. Experience in both ground and aerial mapping has shown, however, that the aerial observer is in a much better position to work in this way than the ground mapper, since he can see a greater number of reference points at one and the same time and is also (hills and valleys are not apparent from the air) free from the difficulties arising from differences in elevations. Indeed, with a good base map, the aerial observer's work may be compared to the copying—on a small scale—of a highly coloured carpet lying beneath him, a great deal of the pattern of which, the base map detail, has already been drawn.

From the above it is readily apparent that the rate at which any given territory can be typed is intimately connected with the completeness and accuracy of the observer's base map, since a rational representation of the timber types is usually dependent on these base map details, particularly where lakes and drainage systems are involved. Actual experience has shown that for the above reasons, that is the relations between topography and timber types, some additions to the existing topographic data—except in surveyed townships—are always necessary before typing of timber areas can be commenced.

Such information can be supplied by additional sketching, though experience has shown that this class of work can be done to better advantage from a much greater height than that used for mapping timber, since a distinction between land and water surfaces is possible from practically any altitude. For the same reasons it is often possible at this higher altitude—10,000 feet if weather conditions are suitable—to greatly expedite subsequent closer examination of timbered areas at lower altitudes, by splitting the territory into two or three general types, such as green timber, muskeg, barren, all of which can be recognized at the above altitudes.

Of the total flying time for the season, 342 hours, an analysis of the flight records shows that over 90 per cent. was given to sketching forest types and topography, the remainder being taken up with transportation of ground parties and photography.

(b) *Indirect Mapping*.—While it is realized that photography can produce results which sketch work cannot hope to replace, it was not used in the past season as an essential part of type mapping. So far no photographic system has been developed which could produce the information desired at a cost which the nature of the work would justify. Undoubtedly photography will eventually go much further in this direction than at present. But while the carrying of timber type lines over immense areas by photography is still very expensive, it is considered that in its present state of development it can be used to advantage to give information for the construction of base maps for sketching which would render the work more accurate and would also effect an economy in the whole operation, since a very small saving in flying time will pay for a great deal of photographic work.

Procedure for type mapping in the past season's work may therefore be summarized as follows:—Type maps were prepared by an experienced forest observer, sketching directly on base maps two miles to the inch scale. In all 13,500 square miles or 8,640,000 acres were thus mapped, requiring flights totalling 25,000 air miles. Information from these maps prepared in flight was then, on returning to the base at Remi Lake, transferred to an office map, and from the latter information as to timber was given to the ground parties in map form from time to time as required. It might be well to state here as an indication of the accuracy of this work that information as to type limits given to and checked by the ground parties was found to be reliable except in two instances; (1) during the first three or four flights the difference between dense stands of scrubby dwarf spruce and merchantable stands of the same species, while recognized, was not known to indicate such significant differences in the stand as actually existed. Ground study by the observers, as mentioned above, settled this question so that throughout the remainder of the season no trouble was experienced in this connection, (2) there was throughout the season a tendency to overestimate the percentage of hardwoods associated with the conifers in the mixed type.

2. Ground Work.

After the area had been typed and mapped from the air, a copy of this map was delivered to the ground parties, who then were in a position to locate starting points for samples for the estimate. The strip method was adopted, and was confined to areas bearing commercial quantities.

Fifteen men were used on the Abitibi and Mattagami rivers, one chief, two sub-chiefs, six other forestry men, four canoe men and packers and two cooks. The whole party with seven canoes, seventeen and eighteen foot "Chest-

nut" model, did not leave Clute on the Frederickhouse river until June 3rd, owing to the spring flood. The party proceeded to Moose Factory, one of the Hudson Bay Co. posts, with five weeks' supplies, slightly over a ton. Arrangements were made at Cochrane to have a similar amount cached at the junction of the Abitibi and Little Abitibi rivers within the five weeks.

Work commenced five miles north of Moose Factory and extended south up the Moose river to the junction of the Moose and Abitibi rivers, where the party split, eight men going up the Moose and Mattagami rivers and seven men up the Abitibi river.

In addition to the above fifteen men on the rivers, two men were stationed at the air base at Remi Lake to be placed by aircraft in regions lacking practicable canoe routes. Later in the season two other men were taken from the river party and used on this work. These parties were landed on lakes with from one to three weeks' supplies and acted on the instructions of the aerial observers, who decided what strips were necessary to cover the pulpwood in that particular locality. In this way parties were placed on the following lakes; Kesagami, Pierre, Indian Reserve No. 9 and unnamed lakes designated by the letters F., G., J., K., L., N. on the map. For the final estimate, areas on which strips were not run were compared by the observer with areas where samples were taken. The aircraft was not equipped to carry a canoe which handicapped the effectiveness of these parties. In some instances the planes while on sketching work would land and transfer a party to another camping ground.

The strip method consisted in running a compass and chain line 11 feet wide and measuring all commercial species 4 inches (diameter taken at breast height) and over, in one inch diameter classes. In this region in general the cordage runs heaviest adjacent to the water courses, the types paralleling the shore line. This characteristic feature of the timber distribution was directly responsible for the field procedure of the ground parties, which usually consisted in running a single straight strip per day at right angles to the general direction of the shore line; occasionally a shorter strip in from the water, an offset of $\frac{1}{2}$ mile and a second strip back to water was substituted for the single long strip. It was found that where a single strip was run it was possible to tally $4\frac{1}{2}$ miles; with two strips and offset, three in and three out, or a total of six for the day. Results of the season's work go to show, however, that $4\frac{1}{2}$ miles in a single strip, besides allowing for a better check of the aerial type map, gives a much better basis for an estimate of the timber in this type of country than the two parallel three-mile strips, whose tallies tend to give too much prominence to the better stands close to the shore and not enough to the poorer growth on undrained areas inland.

Two and three-man parties were used, three-man is recommended, that is one caliperman, one compass man and a tally man. With three men, calipers may be used and the caliperman is in a position to size up every tree. Calipers were used every day for the first two weeks, after which dimensions were estimated by eye. The caliperman checked himself once a week by taking his calipers into the field. This gives actual calipering for 30 per cent. of the time.

Throughout the season, June 3rd to September 20th, 470 miles of strip were run.

In addition to running strips, volume table data was collected for black spruce generally throughout the whole area. The figures were compiled into two general regional tables. (See tables 5, 6.). Measurements were made on white spruce but it was found the volumes compared favourably with existing tables and these were used.

The measurements for black spruce were taken as follows:

Location	No. of Trees	Av. Age on 12-inch stump
Remi Lake.....	119	....
Grand Rapids, Mattagami River.....	51	109 years
Lower Abitibi River, at Little Abitibi River.....	30	....
Upper Abitibi.....	39	....
Upper Mattagami.....	133	112 years
Fernow Lake.....	20	111 "
Indian Reserve No. 9.....	50	109 "
Total.....	442	

IV. FOREST TYPES AND CONDITIONS.

1. *Relief and Drainage.*

From this standpoint the characteristic feature of the whole territory is the low monotonous relief and slow drainage, the total fall in the 175 miles from the Canadian Government Railway track to James Bay being only 900 feet.

The most important topographic and drainage feature in the whole region is undoubtedly the low escarpment—perhaps more pronounced in the western part of the area—which marks the northern limit of the Clay Belt. This formation, which runs in a fairly definite northwesterly-southeasterly direction crosses the Ontario-Quebec boundary line about forty miles north of the Canadian Government Railway, runs north of Little Abitibi Lake, strikes the Abitibi river in the neighbourhood of the Canyon, crosses the Mattagami about the Long Rapids and continues westward out of the territory examined.

Elevations on the Abitibi river as shown by O. L. S. Kenny in a survey of this river made during the current year (1922), may serve to indicate the character of this formation and of drainage conditions in the country generally.

From Cochrane to the head of the Lobstick Rapids taken as the edge of the escarpment, a total fall of 271 feet is recorded or five feet to the mile. The drop over the escarpment—a distance of about $6\frac{1}{2}$ miles from the head of the Lobstick to the foot of the Abitibi Canyon—is 234 feet, or 36 feet to the mile. From the foot of the Canyon to James Bay the fall is given as 406 feet in 120 miles or about 3.4 feet to the mile.

The drainage is peculiar in that the main rivers—the Mattagami and the Abitibi—have few feeders of importance and appear to flow through the country without any very perceptible increase in volume of water. Perhaps the best developed river system in the region is shown by the French which flows into the estuary of the Moose from the west not far above Moose Post, and which with its tributaries drains about one-third of the whole area examined.

Lakes are usually small and of infrequent occurrence in the western and northern sections of the country. South and east, however, in the territory between Kesagami and Little Abitibi the occurrence of lakes of good size is rather common. This condition continues eastward into Quebec.

Finally it should be noted that the whole territory, because of the difference in slope, falls naturally into two sections, a northern and a southern.

In the former, the slope, as before noted, is only 3.4 feet to the mile and in the latter five feet, giving a difference of 1.6 feet, which, though actually small, is seen to be proportionately large.

2. *General Forest Conditions.*

The resultant difference in drainage conditions noted above is strongly reflected in the character of the forest growth, giving two distinct timber regions

which may be designated as the Coastal Plain region to the north and the Northern Clay Belt region to the south. The former comprises 5.8 million acres and the latter 2.8 million acres.

The Coastal Plain is poorly timbered from a commercial viewpoint. The bulk of the timber standing on the area is inland and inaccessible, the largest area being west of Kesagami Lake, with blocks scattered in that portion of the region south and east of this lake. The commercial stands to-day are restricted to a narrow belt up to one-half mile in width along the rivers and streams. Practically 70 per cent. of the coastal plain area is given over to endless scrubby stands of dwarf black spruce and various classes of muskeg.

In the northern clay belt region, however, pulpwood conditions are much better. Not only are drainage conditions more favourable to true development, but the region exhibits more relief inland from the rivers. In consequence, the pulpwood supplies are not confined to the rivers but additional stands, both pure and mixed, occur on the low ridges and knolls scattered throughout the extent of non-commercial scrubby spruce.

The difference in character of the coastal plain and northern clay belt regions is summed up in the fact, that the timber bearing areas in the former aggregate only 6.8 per cent. of its acreage, while in the case of the northern clay belt they constitute 38.8 per cent.

3. *Forest Types.*

The forest growth of the territory under consideration resolves itself into a very few strongly marked types with a limited number of species. The rivers everywhere are lined with a narrow belt of mixed evergreen and broad-leaved trees. Beyond this belt and paralleling it, runs one of practically pure black spruce. As one gets farther from the river, the spruce rapidly and progressively falls off in diameter and height, the number of trees per acre increasing, with a tendency towards growth in clumps. Finally, at a distance in general of a few hundred yards up to one-half mile in the coastal plain, trees of commercial size are left behind, and a scrub type is entered. Here the trees are extremely dwarfed although very old, and eventually give way to open muskeg. In the northern clay belt, however, the black spruce, is continued inland indefinitely, depending on drainage, assuming a patchy character among mixed stands and scrub.

Inland, these same types are repeated around all lakes, and wherever there is any variation in the relief.

(a) *Mixed Type.*—This type along the rivers consists of black and white spruce, balsam, cedar, both balsam and aspen poplar and paper birch. It varies but little in composition throughout the total length of these long waterways, there being a slight increase in the quantity of birch, balsam and cedar, and a general improvement in the stands as one comes south; this was particularly noted in the poplar, although nowhere is it found free from heart rot, after reaching seven and eight inches D.B.H.

This type is also to be found inland from the rivers in small areas, in association with black spruce stands, generally on gentle rises in the ground and adjacent to lakes. The occurrence of these mixed stands (and as well, stands of pure spruce) inland, and additional to the river timber, is a feature characteristic of the northern clay belt region; whereas they are of relatively infrequent occurrence in the coastal plain. This inland mixed type differs from the river type in the absence of cedar and balsam poplar, and the poorer development especially of white spruce; it accordingly gives a lower yield of pulpwood.

On the basis of pulpwood cordage, the mixed type runs 54 per cent. black spruce, 24 per cent. white spruce and 22 per cent. balsam, in the northern clay belt; the corresponding figures in the coastal plain are 54, 19 and 27.

The mixed type exclusive of hardwood (broad-leaved) species produces the heaviest cordage, averaging 10.7 cords in the coastal plain and 9.1 cords in the northern clay belt, per acre of timbered area. It is to be recalled that in the former, little of the inland mixed type is concerned, which yields less than the river mixed type.

In all, 543,434 acres, or 36.6 per cent. of the total timbered area, is classified as mixed stands containing 40 per cent. of the total pulpwood. Of the timbered area of the coastal plain, they constitute around 22 per cent. and in the case of the northern clay belt around 42 per cent.

(b) *Black Spruce Type*.—This type supplies around 60 per cent. of the pulpwood wealth of the whole territory and occupies in round figures 942,000 acres in the total timbered area or 64 per cent. of it. As previously stated the fringe of mixed stands along the river banks is succeeded, as one leaves the river, by practically pure black spruce; this in turn gives way to the black spruce scrub. In addition to such occurrence, the black spruce type is to be found generally throughout the inland areas in the northern clay belt, in particular, the western two-thirds of it.

Spruce stands are healthy, the only damage observed being that of wind-throw in small plots 200 or 300 feet across. Their development is better in the southern section. Under the stands is a thick carpet of sphagnum moss with openings in the stand filling in with alder, especially in the northern clay belt section.

The composition of the black spruce type on a pulpwood cordage basis is 90 per cent. black spruce and five per cent. each of white spruce and balsam in the northern clay belt region; in the coastal plain, the percentage of both black and white spruce increases slightly at the expense of balsam.

Black spruce stands have an average yield per acre of 7.0 cords in the coastal plain, and 8.4 cords in the northern clay belt.

(c) *Dwarf Black Spruce Type*.—This type is related to the excessive water conditions, the ground being covered with several feet of sphagnum moss, which retains the moisture and keeps the ground frozen late into the growing season. The trees are stunted, reaching a maximum of 30 feet in height and four inches D.B.H. at ages up to 150 years. They are mature and have no commercial value. The type runs 1,000 or 1,200 of these dwarfs per acre gathered into a clump-like stand. A certain amount of dwarf tamarac is present among the prevailing black spruce scrub.

This type covers 2.4 million acres or 28 per cent. of the territory and is more prevalent in the coastal plain region.

(d) *Muskeg Type*.—The separation of the muskeg type from the dwarf black spruce was almost entirely aerial. From an aeroplane a very definite line is evident in the scrub spruce surrounding the open muskeg. The trees are much shorter, more distinctly in clumps and with the clumps at greater distances from one another, so that from the air the intervening ground spaces stand out. Consequently, an arbitrary division line between muskeg and the dwarf spruce type was chosen, corresponding to this characteristic appearance from the air. Study of these stands by the ground parties, gave a figure of around 400 trees, averaging nine feet in height as a maximum growth condition for this type. Hence the muskeg type includes the treeless areas and the open portion of the dwarf black spruce type.

The muskeg type as defined above covers 2.4 million acres or 28 per cent. of the whole. Percentically the proportion is much higher than in the coastal plain where it reaches 40 per cent.

(e) *Burn*.—In all, around 1.9 million acres were mapped as burn, or 22 per cent. of the whole. This is made up of about 20 per cent. of the coastal plain region and 26 per cent. of the northern clay belt. The loss has been small in the coastal plain, since the burned areas originally were largely dwarf spruce or muskeg. In the northern clay belt, however, fire has burned considerable timber. The greatest damage has resulted west of Little Abitibi Lake towards the Abitibi Rivèr. Reproduction in the northern clay belt is by poplar and birch with spruce coming in as an understory. East and west from the Mattagami River along the escarpment between the two main regions, dense jack pine reproduction is to be found.

(f) *Jack Pine*.—This species was found in clumps in short ridges or low gravelly knolls in a virgin state in the belt of country intermediate between the northern clay belt and coastal plain. Most of the mature jack pine found was in the vicinity of New Post on the Abitibi River, where it was accompanied by an understory of black spruce.

4. *Tree Species.*

Black Spruce.—This is the tree characteristic of the whole territory, occurring in mixed and pure stands. It reaches a development up to 80 feet in height and 15 inches D.B.H. and is in general quite sound. Average conditions confine the species to a general diameter range of five to nine inches and height of 45 to 60 feet. This species constitutes three-fourths of the total pulpwood supply of the area.

White Spruce.—This species, while forming a small percentage in the black spruce type, is mainly found in the mixed type on the banks of rivers and streams. It is a less important feature in the pulpwood resources of the coastal plain than of the southern region. About 13 per cent. of the total pulpwood is white spruce. The tree reaches 120 feet and 30 inches D.B.H.

Balsam.—The balsam ranks third after the two spruces as a source of pulpwood in the region. It reaches a maximum D.B.H. of 18 inches with a height of 60 feet, the common diameters being seven to nine inches. Balsam is severely affected with heart rot, and the estimated deduction would be one-third of the volume.

Jack Pine.—Trees of this species were tallied up to 18 inches D.B.H. and 70 feet high. The northern limit for the species was a scrubby growth inland from the mouth of the Onakawana River.

Tamarac.—Scattered young trees were noted throughout the whole area, but of no commercial value. Along the smaller streams, trees were seen up to six inches D.B.H. It occurred in pure stands of a scrubby character north of Moose Factory, adjacent to James Bay; southward, it merged in with dwarf black spruce.

Cedar.—Cedar occurs in the mixed type along the main rivers and streams to James Bay. It shows only a stunted growth.

Aspen Poplar.—This is the typical hardwood (broad-leaved) species of the region, just as the black spruce among the conifers. While occurring throughout the whole region, it is largely confined to the better drained banks of the streams, and is the predominating hardwood in the inland patches of the mixed type. It grows well to a D.B.H. of 20 inches and height of 80 to 90 feet, but suffers severely from heart rot.

Balsam Poplar.—This poplar grows close to the water, usually in clumps along river banks, and is found extensively on the islands in the lower Moose River, near the Bay. Like the aspen, it is much affected with heart rot.

Paper Birch.—Going north down the rivers towards James Bay, the birch becomes reduced in numbers. It is not plentiful, except around the lakes on Indian Reserve No. 9, where a considerable quantity was found in mixture with conifers; here about two cords to the acre.

White Pine, Black Ash, Elm.—These species are of botanical interest only. A few white pine were seen on an island below Little Long Rapids, Mattagami River. Black ash was noted near Devils Rapids on Mattagami River, growing to tree size, and below Island portage towards the Lobstick portage on the Abitibi River, a shrubby growth of the species occurs. A few trees of white elm, 36 inches D.B.H. were observed near Devils Rapids on the Mattagami River.

V. RESULTS

The total area of 13,500 square miles or 8,640,000 acres falls naturally into two regions—a belt of low-lying very poorly drained country adjacent to James Bay, called in this report the coastal plain, and containing 5.8 million acres, or 67.4 per cent. of the whole; with the remainder, or northern clay belt better drained and comprising 2.8 million acres or 32.6 per cent. On the map, these two regions are separated by a broken black line running slightly southeasterly from the Long Rapids on the Mattagami River to the Quebec boundary.

Of the territory, slightly under 1,500,000 acres, or 17.2 per cent., support tree growth of pulpwood size. Of this acreage 36.6 per cent. consists of mixed stands and 63.4 per cent. of pure black spruce. Approximately 73 per cent. of the timbered area is in the northern clay belt, with only 27 per cent. in the coastal plain. It covers 38.8 per cent. of the area of the northern clay belt, and only 6.8 per cent. of the coastal plain.

The remainder of the territory, around seven million acres, contains no commercial pulpwood supplies. It is classified as muskeg, dwarf black spruce, burn and water, constituting respectively, 28.4, 27.9, 21.9 and 4.6 per cent. of the whole.

The details of the classification of the whole territory are given in table I. below.

TABLE I.—CLASSIFICATION OF JAMES BAY FOREST SURVEY AREA.

Type	Coastal Plain		Northern Clay Belt		Total	
	Acres	Per Cent.	Acres	Per Cent.	Acres	Per Cent.
<i>Timbered:</i>						
Mixed.....	85,540	1.5	457,894	16.4	543,434	6.2
Black Spruce.....	312,124	5.3	629,982	22.4	942,106	11.0
Total.....	397,664	6.8	1,087,876	38.8	1,485,540	17.2
<i>Non-Timbered:</i>						
Dwarf Black Spruce.....	1,715,192	29.5	685,360	24.4	2,400,552	27.9
Muskeg.....	2,357,248	40.3	95,280	3.5	2,452,528	28.4
Burn.....	1,155,952	19.8	740,320	26.4	1,896,272	21.9
Water.....	210,216	3.6	195,928	6.9	406,144	4.6
Total.....	5,438,608	93.2	1,716,888	61.2	7,155,496	82.8
Grand Total.....	5,836,272	100.0	2,804,764	100.0	8,641,036	100.0

The timbered area contains pulpwood supplies totalling in all a little over 12,750,000 cords, including trees four inches D.B.H. and up. Of this quantity, a little over three million cords or 24.3 per cent. are in the coastal plain, and 9.6 million cords or 75.7 per cent. stand in the northern clay belt.

The total quantity of pulpwood consists of 9.6 million cords of black spruce, 1.6 million cords of white spruce, 1.4 million cords of balsam and less than 100,000 cords of jack pine.

It may here be repeated that the mixed type averages 10.7 cords in the coastal plain, and 9.1 cords in the northern clay belt, per acre of the timbered area; while the black spruce type averages 7.0 cords and 8.4 cords in the same two regions respectively. The general average for the whole timbered area is 8.6 cords per acre.

A considerable proportion of the total standing pulpwood does not lend itself to profitable exploitation, owing in some cases to the scattered distribution of the stands concerned and in others on account of the location of the timber. Such timber has been inserted in the tables under the heading of "remote areas." In all, 2.8 million cords are so listed, or 22.2 per cent of the total pulpwood; of the quantity, however, almost two million cords are in the coastal plain.

If the timber in "remote areas" be neglected, there still remains 9.9 million cords, of which 11.8 per cent. is in the coastal plain and 88.2 per cent. in the northern clay belt (here largely in the western portion). This gives a final average of 8.5 cords per acre of the area of accessible pulpwood.

Of the total timber in the territory, 3.7 million cords or 29.2 per cent. is tributary to the Mattagami River, three million cords or 23.5 per cent. on the Abitibi; 2.3 million cords or 18.1 per cent. on the Little Abitibi, and under 500,000 cords each to the French and the Moose (3.7 and 3.3 per cent. respectively); leaving 2.8 million cords or 22.2 per cent. remote.

The details of the estimated pulpwood cordage embracing all trees four inches D.B.H. and over, are given in the tables below. A cord is taken as 85 solid cubic feet of wood.

TABLE II.—PULPWOOD RESOURCES BY REGIONS.

UNIT	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	J. Pine Cords	Total Cords
<i>A. Northern Clay Belt:</i>						
Mattagami R.....	368,410	2,877,523	375,923	348,099	14,911	3,616,456
Abitibi R.....	346,584	2,047,960	499,122	242,735	43,129	2,832,946
Little Abitibi R.....	284,155	1,584,560	315,924	411,530	....	2,312,014
Remote Areas.....	999,149 88,727	6,510,043 583,496	1,190,969 94,211	1,002,364 183,979	58,040 35,885	8,761,416 897,571
Totals.....	1,087,876	7,093,539	1,285,180	1,186,343	93,925	9,658,987
<i>B. Coastal Plain:</i>						
Mattagami R.....	16,340	66,616	33,870	17,301	....	117,787
Abitibi R.....	23,400	146,447	14,566	10,579	....	171,592
French R.....	62,572	352,290	108,249	6,319	....	466,858
Moose R.....	61,672	333,855	76,039	9,641	....	419,535
Remote Areas.....	163,984 233,680	899,208 1,627,171	232,724 92,101	43,840 212,617	.... ....	1,175,772 1,931,889
Totals.....	397,664	2,526,379	324,825	256,457	....	3,107,661
Grand Totals....	1,485,540	9,619,918	1,610,005	1,442,800	93,925	12,766,648

TABLE III.—PULPWOOD RESOURCES BY FOREST TYPES

UNIT	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	Total Cords	%
A. MIXED TYPE:						
1. <i>Northern Clay Belt:</i>						
Mattagami R.....	86,720	401,515	185,056	131,296	717,867	..
Abitibi R.....	145,040	673,928	419,494	183,294	1,276,716	..
Little Abitibi R.....	175,367	889,285	315,924	411,530	1,616,739	..
Remote Areas.....	50,767	280,150	94,211	183,979	558,340	..
TOTALS.....	457,894	2,244,878	1,014,685	910,099	4,169,662	32.7
2. <i>Coastal Plain:</i>						
Mattagami R.....	3,420	17,562	2,492	14,647	34,701	..
Abitibi R.....	3,840	14,208	13,440	6,528	34,176	..
Moose R.....	9,360	39,023	67,987	9,641	116,651	..
Remote Areas.....	68,920	429,683	92,101	212,617	734,401	..
TOTALS.....	85,540	500,476	176,020	243,433	919,929	7.2
GRAND TOTALS...	543,434	2,745,354	1,190,705	1,153,532	5,089,591	..
B. BLACK SPRUCE TYPE:						
1. <i>Northern Clay Belt:</i>						
Mattagami R.....	281,690	2,476,008	190,867	216,803	2,883,678	..
Abitibi R.....	201,544	1,374,032	79,628	59,441	1,513,101	..
Little Abitibi R.....	108,788	695,275	.....	.....	695,275	..
Remote Areas.....	37,960	303,346	.....	.....	303,346	..
TOTALS.....	629,982	4,848,661	270,495	276,244	5,395,400	42.3
2. <i>Coastal Plain:</i>						
Mattagami R.....	12,920	49,054	31,378	2,654	83,086	..
Abitibi R.....	19,560	132,239	1,126	4,051	137,416	..
French R.....	62,572	352,290	108,249	6,319	466,858	..
Moose R.....	52,312	294,832	8,052	.....	302,884	..
Remote Areas.....	164,760	1,197,488	.....	.....	1,197,488	..
TOTALS.....	312,124	2,025,903	148,805	13,024	2,187,732	17.1
GRAND TOTALS...	942,106	6,874,564	419,300	289,268	7,583,132	..
C. JACK PINE:						
.....	.....	.....	.....	.....	93,925	0.7
GRAND TOTALS...	1,485,540	9,619,918	1,610,005	1,442,800	12,766,648	100.

TABLE IV.—SUMMARY OF PULPWOOD RESOURCES

UNIT	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	J. Pine Cords	Totals Cords	%
Mattagami R.....	384,750	2,944,139	409,793	365,400	14,911	3,734,243	29.2
Abitibi R.....	369,984	2,194,407	513,688	253,314	43,129	3,004,538	23.5
Little Abitibi R.....	284,155	1,584,560	315,924	411,530	.....	2,312,014	18.1
French R.....	62,572	352,290	108,249	6,319	.....	466,858	3.7
Moose R.....	61,672	333,855	76,039	9,641	.....	419,535	3.3
TOTALS.....	1,163,133	7,409,251	1,423,693	1,046,204	58,040	9,937,188	77.8
Remote Areas.....	322,407	2,210,667	186,312	396,596	35,885	2,829,460	22.2
GRAND TOTALS..	1,485,540	9,619,918	1,610,005	1,442,800	93,925	12,766,648	100.
Per cents.....	.....	75.4	12.6	11.3	0.7	100.0	

TABLE V.—VOLUME TABLE FOR BLACK SPRUCE.

JAMES BAY SURVEY, 1922.

Northern Clay Belt.

Volume to 4" top I.B. stump height 12". No allowance for rot or defect.

Basis 361 trees.

D.B.H.	Vol. Cu. Ft.	Vol. Cords
4	.70	.009
5	1.65	.020
6	3.28	.039
7	5.30	.062
8	7.70	.090
9	10.60	.125
10	14.00	.165
11	18.00	.210
12	22.70	.267
13	28.10	.330

TABLE VI.—VOLUME TABLE FOR BLACK SPRUCE.

JAMES BAY SURVEY, 1922.

Coastal Plain.

Volume to 4" top I.B. stump height 12". No allowance for rot or defect.

Basis 81 trees.

D.B.H.	Vol. Cu. Ft.	Vol. Cords.
4	.74	.009
5	1.42	.017
6	2.53	.030
7	4.23	.050
8	6.50	.076
9	8.90	.105
10	11.24	.130

III.—REFORESTATION.

During the past year the work of reforestation has been marked chiefly by the preparation for production of planting material. Two new forestry stations have been established, one in Durham County near the village of Orono; the other at Midhurst, five miles from Barrie. A description of these two stations together with reports on work already being carried on, is here appended.

PROVINCIAL FORESTRY STATIONS.

ST. WILLIAMS.

Spring sowing of seed beds commenced April 5th and continued until May 20th, a total of 382 beds being sown. On November 10th work was commenced in connection with fall sowing. By the 9th of December, when cold weather compelled a cessation of the work a total number of 414 beds were sown.

SPRING SOWING OF CONIFEROUS SEED.

SPECIES.	Collected	Origin.	No. of Beds Sown.	Amount Seed Lbs.	Per bed Ozs.	Total Amount Seed lbs.
Scotch Pine.....	1921	Norfolk County	90	.	10	56 $\frac{1}{4}$
Scotch Pine.....	1921	Danish	80	..	10	50
Jack Pine.....	1921	Norfolk County	100	..	9	56 $\frac{1}{4}$
Red Pine.....	1921	Simcoe County	1	..	12	$\frac{3}{4}$
White Spruce.....	1920	Simcoe County	1	1	..	1
Norway Spruce.....	1921	German	20	1	..	20
European Larch.....	1921	Switzerland	90	1	4	112 $\frac{1}{2}$
Total.....			382	..	..	296 $\frac{3}{4}$

FALL SOWING OF CONIFEROUS SEED.

SPECIES.	Collected	Origin.	No. of Beds Sown.	Amt. Seed Lbs.	Per Bed Ozs.	Total Lbs.	Amt. Seed Ozs.
White Pine.....	1922	Simcoe County	185	1	4	231	4
Red Pine.....	1921	Simcoe County	100	..	13	81	4
Scotch Pine.....	1921	Danish	18	..	12	13	8
Scotch Pine.....	1921	Scotland	2	..	12	1	4
Japanese Larch..	1921	.....	5	1	4	6	4
White Spruce....	1922	Simcoe County	35	1	..	35	..
White Cedar.....	1922	Simcoe County	35	1	4	43	12
Red Cedar.....	1922	Pr. Edward County	20	3	8	70	..
Balsam.....	1922	Simcoe County	14	1	8	21	..
Totals.....			414	.....	.....	603	4

In addition to the foregoing, a large quantity of hardwood seed was sown in drills, flats and beds.

SOWING OF HARDWOOD SEED.

SPECIES.	Origin.	Date of Sowing.	How Sown.	Amt. of Seed Sown, Bus.
Soft Maple.....	Norfolk County	June 5	Flats	30
White Elm.....	Toronto	June 5	Flats	6
Black Walnut.....	Norfolk County	Oct. 17	Drills	400
Hard Maple.....	Pr. Edward County	Oct. 19	Flats	15
White Walnut.....	Simcoe County	Oct. 26	Drills	90
White Ash.....	Simcoe County	Nov. 16	Flats	14
Red Ash.....	Norfolk County	Nov. 16	Flats	1
Sweet Chestnut.....	Norfolk County	Nov. 16	Drills	1 $\frac{1}{2}$
Hard Maple.....	Lanark County	Dec. 1	Flats	8
Black Cherry.....	Norfolk County	Dec. 1	Seed Beds	1 $\frac{1}{4}$
Basswood.....	Norfolk County	Dec. 1	Seed Beds	1
Basswood.....	Simcoe County	Dec. 1	Seed Beds	1 $\frac{1}{2}$
Red Oak.....	Simcoe County	Dec. 9	Drills	1 $\frac{1}{2}$
Beech.....	Simcoe County	Dec. 9	Seed Beds	1 $\frac{1}{4}$
Black Locust.....	Norfolk County	Dec. 9	Seed Beds	$\frac{1}{4}$
Total.....				572 $\frac{1}{4}$

Small quantities of seed of the various hardwoods indigenous to Southern Ontario were also sown, comprising water beech, American mountain ash, hackberry, pepperidge, dogwood, cucumber tree, tulip, catalpa and sassafras.

NURSERY LINES.

During the spring, 710,000 two-year old jack pine seedlings were lined out, while 230,000 one year old Scotch pine were transferred from seed beds to nursery lines.

A much larger number of seedlings were lined out during late summer and autumn. Planting began on 7th of August, terminating on the 9th of November. In addition to the regular staff employed, thirty boys, ranging from twelve to fifteen years of age were employed on this special work until school was reopened. The use of planting boards was resorted to with unvarying success, resulting in greater speed and more careful planting.

FALL TRANSPLANTING.

SPECIES.	Origin.	Age.	No. of Plants.
White Pine.....	Norfolk County	2 year old	548,000
Jack Pine.....	Algoma District	2 year old	1,473,300
Austrian Pine.....	Norfolk County	2 year old	12,300
White Spruce.....	Simcoe County	2 year old	945,000
Norway Spruce.....	Norfolk County	2 year old	71,000
White Cedar.....	Simcoe County	2 year old	164,400
European Larch.....	Western Alps	1 year old	474,820
Balsam.....	Simcoe County	2 year old	7,980
Total.....			3,696,800

A number of hardwoods comprising 70,200 white elm and 79,600 soft maple, too small for distribution, were also lined out, making a total of 3,846,600 seedlings planted in nursery lines during the fall season.

In addition to the foregoing disposal of seedlings, a considerable number were shipped to the several recently organized Provincial Forestry Stations and Plantations in the following proportions:

SPECIES.	Provincial Forestry Stations.		Provincial Forestry Plantations.		Totals.
	Orono.	Midhurst.	Simcoe Co.	Sand Banks.	
White Pine.....			286,700		286,700
Scotch Pine.....	114,000	200,000		63,900	377,900
Red Pine.....			3,500		3,500
Jack Pine.....		50,000	13,000	59,300	122,300
White Spruce.....	22,000	100,000	854,500	326,900	1,303,400
Norway Spruce.....	84,000	50,000		7,000	141,000
White Cedar.....			14,600	70,500	85,100
Totals.....	220,000	400,000	1,172,300	527,600	2,319,900

FERTILIZERS.

Fertilizers applied during the year in connections with the nursery lines and seed beds are as follows:

Location.	Animal.		Mineral.	
	Manure Tons.	Dried Blood Lbs.	Acid Phosphate Lbs.	Sulphate of Ammonia Lbs.
Lot 2.....	..	100	270	..
Lot 3.....	..	120	320	60
Lot 4.....	..	280	1,100	140
Lot 5.....	52	600	1,100	300
Lot 6 to 11 inclusive.....	5	..	..	..
Lot 20 to 23 ".....	5	..	..	..
Lot 24.....	5	..	400	..
Lot 25.....	5	..	400	..
Lot 26.....	30	..	..	150
Lot 30, 31, 32.....	..	..	800	150
Lot 34, 35.....	..	..	800	150
Lot 36.....	..	250	900	180

Additions to Property.—Although very little building was done during the year, one important construction was completed, namely, an underground room for storing tree seed. This building or room 16' x 22' in dimension, is composed of concrete and is completely surrounded by earth to the extent of seven feet. An even temperature the year round is thus obtained, a medium essential to the storing of seed over a number of years. The seed itself is contained in sealed glass bottles which in turn are labelled to indicate the species, origin, quantity and quality of seed stored.

Roads.—An effort has been made to divide the 1,720 acres comprising the property into workable compartments in order to facilitate the management of the wooded areas of the plantation. The old timber roads have been cleared of all debris, widened and otherwise improved, while one and one-half miles of new road was built to link up these older trails, thereby increasing accessibility and reducing fire hazard. All fire roads were kept clean by ploughing and discing. The sixth concession road extending from the town line west to the quarter town line was cleaned of all inflammable material and diseased and ill-formed tree growth.

The erection of a thirty-five foot tower overlooking a large plantation provides an observation point from which records may be made of the development of the reforested area, for a number of years to come. Moreover, situated as it is on a prominent hill this tower is serviceable as a "look-out" in connection with protection from fire.

To meet with increasing demands for planting material, it has been found necessary to rent a twenty-five acre field abutting the nursery. This field will produce approximately 6,000,000 transplants suitable for permanent planting purposes.

Silviculture.—During the late fall and winter months 140 acres of the wooded section of the forest station was subjected to improvement cutting.

Weed trees, windfalls, standing dead timber and trees showing evidence of fire scar, butt rot, ill-form, oppression and senility were removed and converted into logs and cord wood, the remaining slash being burned.

As a result of this improvement cutting only sound healthy vigorous trees are left, while with the removal of slash, fire hazard is minimized.

Moreover, underplanting was made possible, since by the removal of all undesirable material, a greater growing area was obtained and the resultant reduction of crown density permitted a greater percentage of light ingress, essential to the successful development of the underplanting.

Protection (Disease and Insects).—The policy of eradication of members of the family Ribes for the prevention of the infection of nursery material with white pine blister rust was continued during the recent summer. Three men were constantly employed on this work.

An immunity belt of over one mile in width surrounding the nursery has been freed of host plants, up to the present there has been no evidence of infection of nursery stock from this source.

The destructive work of the white pine weevil has also been held in check by removing all attacked leaders in the older plantations. An interesting and important observation relative to the work of combating this pest may be noted that where the white pine is planted in conjunction with other conifers or along the border, or under an older stand of hardwoods little or no evidence of white pine weevil has been found.

NURSERY STOCK ON HAND DECEMBER 14TH, 1922.

CONIFERS

Balsam.....	7,980
Cedar, White.....	716,400
Larch, European.....	1,469,820
Pine, White.....	2,643,000
Pine, Scotch.....	1,670,100
Pine, Jack.....	4,196,300
Pine, Red.....	2,120,700
Pine, Austrian.....	12,300
Spruce, White.....	1,545,000
Spruce, Norway.....	571,000

14,952,600

HARDWOODS

Ash, White.....	4,450
Birch, White.....	2,300
Basswood.....	1,250
Chestnut.....	6,000
Cherry, Black.....	900
Elm, White.....	84,200
Hickory, Shellbark.....	400
Hackberry.....	550
Locust, Honey.....	900
Locust, Black.....	2,000
Maple, Soft.....	116,300
Maple, Hard.....	16,500
Maple, Manitoba.....	1,300
Oak, Red.....	24,400
Poplar Cuttings.....	250,000
Sycamore.....	450
Tulip.....	1,500
Walnut, Black.....	30,000
Walnut, White.....	3,000
Willow Cuttings.....	50,000

596,400

Conifers.....	14,952,600
Hardwoods.....	596,400

Net Total..... 15,549,000

ORONO.

As this station was acquired during the late summer of 1922, a description of the property, its area, position and conditions may be given first. This new nursery consists of approximately $147\frac{3}{4}$ acres and is situated in Clarke Township, Durham County. The headquarters are on the outskirts of the Village of Orono, about one-third mile from the C. N. R. station. The C. P. R. and G. T. R. are also available in emergency, the former being three miles, the latter five miles south. There are also excellent opportunities for securing labour and a creek which flows to the north of the area, along the east side, penetrates the boundary in two places. Telephone and electric light services are also available.

The area chosen is on the shore line of the glacial Lake Iroquois, with a general southerly aspect. The soil varies greatly from a medium heavy loam in a small portion to a pure medium sand, blowing in patches in the south. In general, however, the soil is a warm, sandy loam. The southerly aspect of the property and the general porosity of the soil renders the solution of the drainage question fairly easy.

There are approximately 100 acres of land suitable for intensive nursery work—seed beds and transplant lines. The remainder of the area, $47\frac{3}{4}$ acres, is largely included in a valley of from 20 to 60 feet deep and from 200 to 600 feet wide which extends from the northeast corner along the east side of the property swinging diagonally in the southern portion to the west side. This offers a good chance for demonstration plantations and, as stated before, since the soil embraces practically all classes from heavy loam to blow sand and as all aspects from north to south are available in larger or smaller areas, practically all species may be represented.

This nursery situated in the heart of a rolling farming country, where every farm contains a percentage of unprofitable hillside, with a wide area of light soil to the west and with the so-called "pine ridge," largely a blow sand area, approximately six miles wide, extending through York, Ontario, Durham and Northumberland Counties a few miles north. It is excellently placed to serve private requirements as well as any project which may be instituted for the complete reforestation of the ridge. The position of the nursery in a thickly populated and prosperous district is also exceptional for the dissemination of educational propaganda.

Owing to the fact that the property was taken over late in the season, most of the work instituted was in the nature of soil cultivation and organization of the property.

However, a small start was made in seed bed work and nursery lines as follows:

TRANSPLANT BEDS.

Transplanting commenced September 7th and terminated October 4th. Material was secured from St. Williams and planted with the Yale Planting Board.

SPECIES.	Origin.	Age.	No. of Plants.
Norway Spruce.....	St. Williams	1 year	2,000
" "	"	1 "	82,000
White "	"	2 "	22,000
Scotch Pine.....	"	1 "	114,000
Total.....			220,000

SEED BEDS.

SPECIES.	Collected.	Origin.	No. of Beds sown.	Amount of Lbs.	Seed per Bed, Ozs.	Total Amount.
White Pine.....	1922	Simcoe Co.	20	1	8	30

The following hardwood seeds were sown in drills and belts:

SOWING OF HARDWOOD SEED.

SPECIES.	Origin.	Date of Sowing.	How Sown.	Amount of Seed Sown.
Hard Maple.....	Pr. Ed. Co.	Nov. 15	Belts	Bushels. 3
White Ash.....	" "	" 20	"	3
Butternut.....	Simcoe Co.	" 23	Drills	20
Black Walnut.....	Durham Co.	" 27	"	18
			Total.....	44

Hard maple and white ash were sown in belts 120 feet long by 11 inches wide. These belts were formed by the use of a seeding roller 35 inches long by 8 inches in diameter. A belt 11 inches wide and 10 inches in diameter formed the centre of the roller. When rolled over the area this left a depression three-quarter inch to 1 inch deep for the whole width of the area with a 12 inch path between belts. In so far as the actual seeding was concerned this device undoubtedly proved its efficiency in speeding up the operation.

NURSERY STOCK ON HAND, JANUARY 1ST, 1923.

CONIFEROUS.	CLASSIFICATION.		TOTALS.
	4" to 6"	4" to 8"	
Norway Spruce.....	74,000	2,000	84,000
White Spruce.....	22,000	.....	22,000
Scotch Pine.....	112,000	.....	114,000
Totals.....	208,000	2,000	220,000

Additions to Property.—A strip of land forty rods long by four rods wide was purchased across the valley which separated the village from the nursery land and a road constructed. This necessitated the erection of two concrete abutments with wings and a concrete culvert.

MIDHURST.

The property purchased for this station consists of approximately one thousand acres of land in Vespra Township, Simcoe County, five miles from the Town of Barrie. It covers a part of a large sand plain at one time occupied with fine stands of red and white pine. Some of the property since then has been

stumped and cropped, but the greater part has been used for pasture farms and wood lots. The approximate areas of the different types are as follows:—

Broken and stumped.....	50 acres
Broken and partially stumped.....	100 “
Second growth in pasture.....	300 “
Pine stumps and pasture.....	350 “
Mixed growth along creek bottoms.....	100 “
Swamp.....	100 “

There were no buildings on the property of any great value at the time of purchase. One six roomed bungalow was built and made ready for use for the winter. As the property was not taken over until September of 1922, most of the work done was of the nature of clearing up and cultivation of the soil. Owing to the unclean condition of the land, no seed beds were sown. A few nursery beds were put in containing 400,000 seedlings from St. Williams and twenty-five bushels of butternuts were planted.

PROVINCIAL FOREST PLANTATIONS.

SAND BANKS.

During the past year, the work at the Sand Banks has been put on a permanent basis. A foreman has been placed in charge and a house and a few acres of land purchased to serve as headquarters. In addition to this, a storehouse and workshop combined and a stable have been erected during the summer. As the work of checking the sand dunes is not expected to show tangible results until the trees planted have put on a few years' growth, and as the sand still continues to cover up privately owned property, the government has offered to purchase land which is thus endangered as well as that which has already been covered up. A flat rate of fifty dollars an acre for agricultural and forested land, and ten dollars an acre for sand covered land has been decided upon, and up to the present most of the land owners adjacent to the banks have sold their property at this price.

By having control of these fringes of good land and especially by insuring permanency of the remaining clumps of mature cedar, the work for the future is safe guarded. Also, some of the land thus acquired is suitable for nursery work, and already a large quantity of planting material has been transferred from St. Williams to nursery beds here, awaiting final planting on the banks.

The work of tree planting was continued during the spring. The protective belts of willow and poplar were widened and supplemented where necessary. Large areas, where the drift was most severe, were planted solid with limb material. In addition to the planting on the exposed areas, a number of small plantations were set out in corners of good fields and in protected places.

SIMCOE COUNTY.

Simcoe is the first of the counties to take advantage of the the government to reforest waste land. The tract purchased of one thousand acres of light soil in Vespra Township about eight n Barrie. At one time this section of the township was covered with big since it was cut, small areas have been farmed with varying success. Th part, however, remains unstumped.

Work was commenced here in April of last year. Five hundred thousand one-year old seedlings were transferred from St. Williams and planted in nursery beds, in preparation for permanent planting in succeeding years. Sixty acres of the property were planted out permanently with Scotch pine and mixed hardwoods. Autumn transplanting was continued with material from St. Williams, bringing the total of seedlings in nursery beds to 1,172,300. In the work of transplanting at the Simcoe plantation, the use of the Yale planting tool was experimented with, on a large scale, for the first time in our work. The rapidity with which small stock can be transplanted by this means, more than justifies its continued use.

During the summer, the section of the property chosen for nursery compartments and headquarters was improved. Buildings on the property were renovated and made ready for the occupancy of a foreman who took charge in the autumn.

TREE PLANTING.

PRIVATE PLANTING.

The distribution of trees for waste land planting and wood lot work on privately owned lands was greater this year than previously. More applications were received than the branch could fill and in all 311 separate persons received trees for planting work.

DEMONSTRATION PLOTS.

In accordance with the plan outlined by the government, for the establishing of plots to demonstrate the utilizing of non-agricultural land for tree growing purposes, the following municipalities have purchased land which has been planted free of cost during the year.

BURFORD TOWNSHIP—BRANT COUNTY.

Situated about one mile from Burford Village on the Provincial County Highway, 5-1/20 acres planted with 3,000 Scotch pine and 2,000 red oak.

DARLINGTON TOWNSHIP—DURHAM COUNTY.

Situated on Toll Gate Hill about two miles from Bowmanville on the County Provincial Highway, a five acre corner lot planted with 4,000 Scotch pine, 2,000 jack pine and 1,000 walnut.

COLBORNE TOWNSHIP—HURON COUNTY.

A part of the township cemetery which is unfit for burial purposes, five acres planted with 3,000 Scotch pine and 1,000 jack pine.

SUNNIDALE TOWNSHIP—SIMCOE COUNTY.

Situated one and a half miles from New Lowell on the Glen Cairn Road. The drifting sand from the adjoining fields has practically blocked one section of the road. Eleven acres of land, a part of which was planted with 2,000 Scotch pine, 3,000 jack pine, 1,000 willow cuttings, 1,000 poplar cuttings and a quantity of willow limb material.

BEETON VILLAGE—SIMCOE COUNTY.

Situated one and a half miles from the village, being a part of the reservoir reserve. This plot not only serves as a demonstration in tree planting, but also shows the use to which trees may be put for protecting the margins of streams and lakes used for water supply. The areas planted are the slopes of hillsides which drain into two streams which feed the village reservoir. Trees planted were, 2,000 Scotch pine, 8,000 jack pine, 1,000 cedar and 2,000 spruce.

ESSA TOWNSHIP—SIMCOE COUNTY.

Situated on the road between Thornton and Essa, being a part of a large sand area unimproved since the mature timber was removed. Ten acres planted with 3,000 Scotch pine and 2,000 jack pine.

NORFOLK COUNTY.

Situated in the Township of South Walsingham and close to the government owned nursery at St. Williams. One hundred acres of land, a part of which was planted with 35,000 Scotch pine.

EDWARDSBURGH TOWNSHIP—GRENVILLE COUNTY.

Situated on the Ottawa Prescott Highway between Kemptville and Spencer-ville. This plot was commenced about six years ago. One thousand Scotch pine were used for completing the area and filling up fail places.

CRAMAHE TOWNSHIP—NORTHUMBERLAND COUNTY.

Situated west of Dundonald on the town line between Brighton Township. One and a half acres of drifting sand planted with 3,000 Scotch pine and 2,000 jack pine.

PLANTAGENET TOWNSHIP—RUSSELL COUNTY.

Situated one and a half mile from the Village of Plantagenet. Ten acres, a part of which was planted with 6,000 Scotch pine.

SUMMARY OF TREES PLANTED PERMANENTLY, 1922.

	Misc. Species	Scotch Pine	Jack Pine	Walnut	Butternut	Hard Maple	Soft Maple	Red Oak	White Ash	Poplar Cuttings	Willow Cuttings
Private Planting.....	.....	199,600	49,401	12,871	6,651	10,827	5,086	7,372	11,324	13,500	11,100
Demonstration Plots...	3,000	62,000	18,000	1,000	.....	.....	.....	2,000	.....	1,000	1,000
Sand Banks.....	9,500	5,000	20,000	2,000	.....	2,000	2,000	.....	2,000	230,000	82,000
Simcoe County.....	5,000	30,000	20,000	64 cords of Limb 2,000	Material	equal to... .....	.....	.....	.....	.....	225,000
	17,500	296,600	107,401	17,871	6,651	12,827	7,085	11,372	13,324	5,000	.....

Total, 1,059,232.

PLANTATION INSPECTION.

Inspection of plantations was carried on this year over the greater part of Western Ontario, embracing the following counties: Welland, Lincoln, Haldimand, Simcoe, Grey, Wellington, Dufferin, Waterloo, Perth, Middlesex, Brant, Oxford, Wentworth, York, Peel, Halton, Peterborough, Durham, Northumberland.

Taking into account the inspection done in previous years this means that with the exception of a few plantations in the northern part of Old Ontario, the whole of the peninsular part of the Province has been covered with the exception of the counties bordering Lake Huron and Kent, Essex and Norfolk Counties. The total area of these plantations inspected amounts to some five hundred acres. There were 448 plantations inspected, none of those having fewer than 500 trees were visited; of these approximately 84 per cent. have been successful, making 30 per cent. and over as the test of success.

The trees were found to be remarkably free of disease. There were no cases of white pine blister rust and only a very few of white pine weevil. An exception

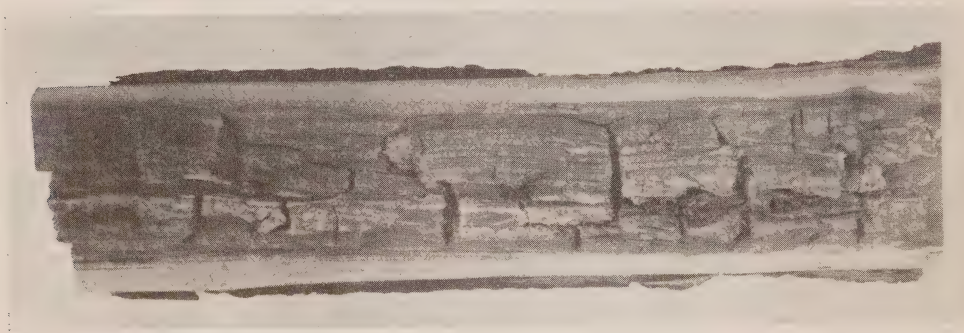


Fig. 5.—Type I: Butt rot of balsam.

to this rule is black locust, which almost everywhere is infested with borer, though the trees are usually not killed for a long time by this insect. The Scotch pine were invariably in a healthy condition.

The plantations were of all ages, ranging from those planted in the spring of this year (though only a few of these were visited) to the oldest, which were begun as far back as 1907 and 1908. Individually, the area of these averages from three-quarters of an acre to one acre, though many were no more than patches a few rods square. The largest visited were from eight to ten acres in extent. There were very few of these.

Below are given some height figures for various species ten years old, as averaged from several of the more successful plantations.

Scotch Pine.....	16.2 feet
White Pine.....	10.4 "
Jack Pine.....	15.3 "
White Ash.....	11.3 "
Walnut.....	7.9 "
Soft Maple.....	13.5 "

SEED COLLECTING.

The season of 1922 has been a prolific seed year for many of our native species used in reforestation work. Gathering of cones and seed was carried on at Angus, St. Williams and at the Sand Banks.

The following seed was secured:

SPECIES.	Bushels.	Lbs. of Seed.
Scotch Pine.....	.....	25.0
Jack Pine.....	.....	38.0
Red Pine.....	.....	6.5
White Pine.....	.....	731.0
White Spruce.....	.....	33.25
Balsam.....	.....	160.0
Tamarac.....	.....	5.0
White Cedar.....	.....	243.0
Red Cedar.....	.....	70.0
Hemlock.....	.....	22.5
Walnut.....	575.0	.....
Butternut.....	267.0	.....
White Ash.....	60.5	.....
Hard Maple.....	60.0	.....
Soft Maple.....	70.0	.....
Elm.....	6.0	.....
Beech (Unshelled).....	15.95	.....
Black Cherry.....	6.8	.....
Basswood.....	2.0	.....
White Birch.....	2.68	.....

IV.—FOREST PATHOLOGY

(Report of Dr. J. H. Faull for 1922.)

Investigations on the following topics in forest pathology were continued or initiated during the season of 1922.

(a) *Physiological diseases.* (1) *Needle blight of white pine.* Several hundreds of trees marked in 1918 and 1919 in connection with studies on needle blight in the Temagami Forest Reserve were checked over. In order to determine the effect on the annual accretion of wood, increment boring and blocks were taken from the majority of them; the results are being collated and will be presented in the next report. (2) *Effects of late spring or early summer frosts on balsam and spruce.*

(b) *"Red branch" of balsam, pine, and arbor vitae, and "spike branch" of spruce.* In the Report of the Minister of Lands and Forests for the Province of Ontario for 1920, a brief account was given of an unexplained dying of the branches of balsam, particularly striking and abundant in some localities, and the causes were demonstrated. Observations have been extended since to other conifers. On the entomological side of this problem interesting data have been contributed by Dr. F. C. Craighead of the Federal Entomological Branch, Ottawa. A summary is included in this report.

(c) *Butt and heart rots.*—Special attention has been given to the pulp woods, in part because of requests for information from several limit holders, and in part because of the vast and almost virgin field of research offered by the pulp woods. It has seemed particularly desirable to concentrate on balsam (*Abies balsamea*) for the reason that it is extremely susceptible to disease, and it presents some of the most vital forest problems confronting us to-day in Eastern Canada. Preliminary analyses have been made of the distribution of the various

types of rots, of the extent of their ravages, and the age at which the tree species become susceptible to them. Studies on the rate of progress of deterioration are also planned, information of essential importance in the rectifying of working plans on a sustained yield basis, and of value in determining when a given stand should be harvested.

Owing to the fact that the identity of the fungi responsible for many of the heart and butt rots is unknown, intensive laboratory research has been carried on in this subject by C. W. Fritz, M.Sc., through the co-operation of the University of Toronto; investigations on fifteen forms have been completed and an account of them will shortly be published.

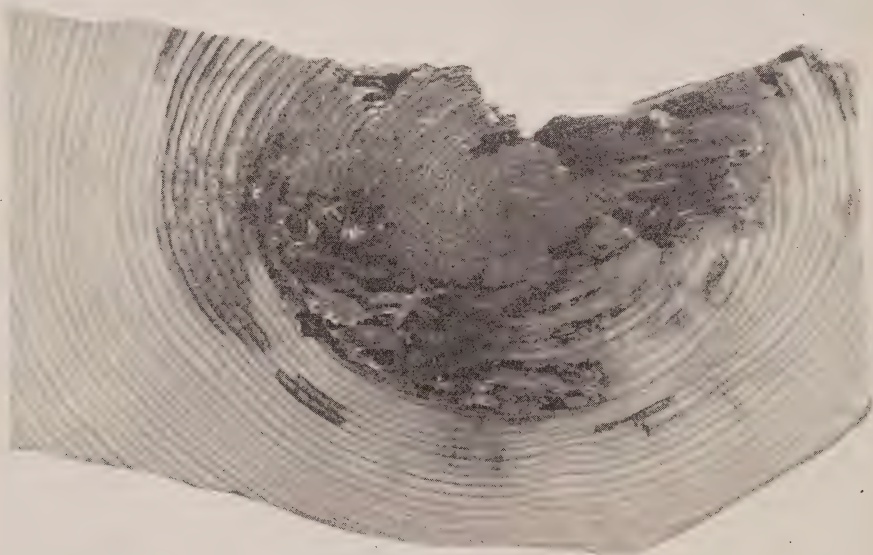


Fig. 6.—Type II: Butt rot of balsam.

As an extension of the work on butt and heart rots some time has been given to the question of their relation to the dying of balsam following bud worm attack.

(d) *Rusts of balsam*.—As a part of the preparation of a monograph on the diseases of balsam, attention has been given to needle diseases. The rusts are among the more important causes of such; they are essentially leaf parasites, though in some cases the stems and branches may be involved. This special group has been investigated by Dr. H. P. Bell, of Dalhousie University, Halifax, who was associated with me in the field, and to whom a working place was granted in the field laboratory through the courtesy of the Forest Branch. Many interesting facts have been brought to light and two new species of rusts on balsam discovered. Dr. Bell's paper on one set of these rusts has been accepted for publication in the *Botanical Gazette*.

(e) *Collections*. (1) *Fungus diseases*.—Many additions have been made to our reference collections in pathology, including contributions from correspondents in various states and provinces.

(2) *Flora of the forest floor*.—For the sake of acquiring a better knowledge of the forest floor, and especially its "index" plants, an annotated and representative, though not exhaustive, collection of seed plants and ferns has been assembled by Mr. H. P. Watson from the Temagami Forest Reserve—about 450 species in all.

1. "Red branch" of balsam, pine, and arbor vitae, and "spike branch" of spruce.

"Red branch" of balsam is of frequent occurrence. The dead, red-needed branches located here and there throughout a balsam tree are conspicuous objects against the dark green setting of normal living foliage, and are bound to attract attention. Various explanations to account for them have been offered; one of the commonest theories is that of snow pressure. But this explanation

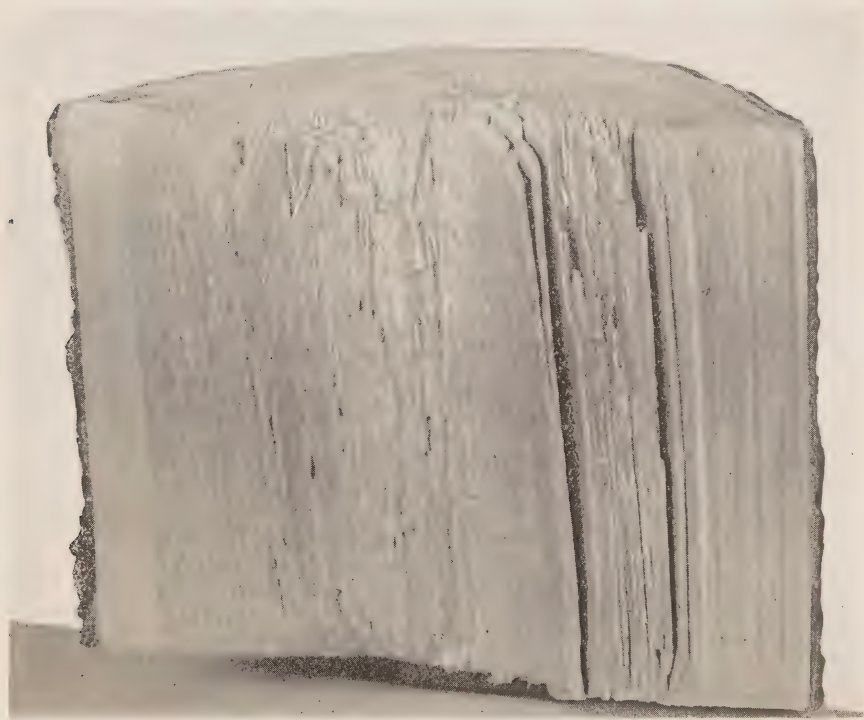


Fig. 7.—Type III: A butt rot of balsam.

lacks proof. The most frequent cause is not snow pressure, but a combination of two factors, namely insect-gnawing of the bark (which is almost invariably restricted to the lower surface, and is by no means a girdling) and the subsequent "drying out" of the living tissues at the same level, a process that is favoured by the action of frost, and by the inactivity of these tissues during the fall and winter.

An examination of the branch at the base of the dead portion almost invariably shows a more or less extensive spot from which the bark has been removed, a ragged-edged wound at once suggesting the gnawing of some small animal. This spot is usually on the under side; it never extends more than half way around the branch and usually much less, so that the branch is not girdled.

It may extend indefinitely towards the tip of the branch, commonly for not more than half an inch, but sometimes for several inches. Occasionally the leader is destroyed in the same way as the branches.

The wound in itself is not sufficient to cause the death of the branch. This was proved by similarly removing the bark with a knife from healthy branches in July of 1919. The wounds healed before the end of the season, and they have shown no ill effects of their maltreatment since then. But when the wounding takes place so late in the season that there is no time left for covering the edges of the wounds with new tissues the result is different. Twenty-five branches were wounded in the same manner in October, 1919. Without exception every one of these branches died from the point of wounding outward and their foliage was red by the following May.

The cause of the wounding in most cases is the large bark beetle *Monohamus scutellatus*. It would also appear from experiments that the rarer *M. marmorator* exhibit the same habit—a habit of these beetles not before known; indeed, it is altogether probable that other species of *Monohamus* (*Monochamus*) resort at times to bark-chewing.

A few instances of what appear to be snow pressure or fungus action occur at times, but in such cases the bark remains intact. Likewise, there are instances of removal of the bark by rubbing, or of the pulling off of low-placed twigs or small branches in the fall or winter, followed by the death of the branches, but they are not frequent. So, too, branches are sometimes killed by breakage due to wind or sleet, or insect burrowing. But the prevalent cause of "red branch" is the combination referred to above.

Now what is true of balsam is also true of white pine (*Pinus strobus*), red pine (*P. resinosa*), jack pine (*P. banksiana*), arbor vitae (*Thuja occidentalis*), black spruce (*Picea mariana*) and white spruce (*P. canadensis*). In the case of the spruces there is an early defoliation and naked branches appear as bushy spikes—hence the term "spike branch." Dr. Craighead reports that at Bathurst, N.B., about 50 per cent. of the "spruce trees standing in old logging operations were defoliated by *M. scutellatus* feeding on the under side of twigs."

In proof of the statement that *Monohamus* is the cause of the wounding Dr. Craighead deposited two males of *M. marmorator* and two females in a cage placed over a living balsam tree six feet high on July 7th. On August 24th much gnawing on the under side of the branches was noted, and by September 15th nearly all of the branchlets had been wounded in this way. By the following spring twenty-one branches had died and reddened. A similar experiment was carried out with *M. scutellatus* and with like results.

2. BUTT AND HEART ROTS.

(a) *General*.—A distinction is drawn between butt and heart rots. The former are rots of any kind localized in the lower part of the trunk and the adjoining roots of a living tree; such rots commonly begin in the roots at the base of the trunk and work their way upwards. The heart rots occur in the heartwood of the main trunk; they commonly enter by way of knots or wounds. Fundamentally there is no difference between the two kinds. Both are caused by fungi. Delicate fungal threads, visible only with the aid of a microscope, except where they form sheets or strands, penetrate the wood partially digesting it; the undigested remains constitute the "rotted" wood. Fruit bodies, usually in the form of brackets or punk (but in a few species as mushrooms or toadstools) eventually develop on the surface of the diseased parts, but as a rule only after

the decay is well advanced or after the affected trunk has fallen to the ground. The fruit bodies produce large quantities of spores, microscopic in size, which are liberated from their surfaces, and which, carried by currents of air or other agents, serve to spread the fungus to other trees. Infection of living trees takes place through the spores lodging and sprouting on wounds or dead branches or branch stubs. Infection by butt rot fungi may also take place through contact between diseased and healthy roots, or in certain species through fungus strands that may traverse the soil.

The amount of loss due to butt and heart rot fungi is enormous; they are



Fig. 8.—Type IV: Heart rot of balsam ("hemlock rot" of balsam).

easily the most destructive agents of the forest. Mature stands will show a destruction up to 50 per cent. or more. The butt rots as a rule do not extend more than a few feet up from the ground, but they weaken the trees at their bases and so facilitate windfall. Indeed, most windfalls are due to this cause, so that in a very direct way the butt rot fungi increase the fire hazard in addition to destroying the timber. The heart rots work throughout the merchantable part of the trunks; they may weaken the stems at any level, so that broken tops are frequent, and in time they spoil the entire tree for any purpose. Even after the death of their hosts these fungi continue to be active, and so they are

found in dead standing timber, fallen trunks, stumps and slash, where they persist as agents of destruction and as breeding centres of infection.

Now as for control, which after all is the ultimate problem, certain facts must be borne in mind. (1) There is not a uniformity of behaviour among the butt and heart rot fungi—hence the various types demand individual study. It is important to know the identity of each, where it fruits (whether on slash, stumps, etc.), what kinds of trees it may attack, and at what ages, and how they work and how rapidly. It is for these reasons that the fungi of the balsam, the spruces and the pines, etc., should receive individual and detailed attention. (2) Sufficient observations have been made to show that young stands do not suffer from butt and heart rots. Trees will grow to merchantable size before they are attacked, though they do fall a prey before they have attained their maximum size. Thus if control be desired it must be considered in connection with leasing and cutting plans. Control will follow automatically when an adequate system of management is put into operation. The rectification of the plans adopted can be effected from time to time as the information indicated above becomes available. Such plans are already being initiated by certain limit holders in Quebec. This has come about through the necessity of doing something if a continued supply at the present rate of consumption is to be assured within competitive reach. The virgin timber left is ever more and more inaccessible and is often much over mature. The harvesting and transportation of this timber easily reaches a point at which the burden of added cost is insupportable. (3) To what extent slash disposal is important as a control measure remains to be seen. Probably it would not much affect the butt rot fungi as they can and do reproduce in connection with the stumps and roots; but it would have a bearing on the control of the heart rot fungi. (4) Methods of harvesting also have a bearing on the question of control. Thus a system of harvesting that permits the leaving of defective and suppressed trees to remain uncut would appear to favour the perpetuation of infection centres, and at the same time threaten the vigour of the succeeding generation of trees. In nature the strongest survive, but by such a system it is the weakest that win out.

(b) *Butt and heart rots of Balsam*.—So far as I know no account has yet been published of the butt and heart rots of the balsam (*Abies balsamea*). Rankin in his "Manual of Tree Diseases" (1918) briefly discusses the butt and heart rots of the American firs in general, including the Douglas fir, but of the six mentioned by him it is not certain that any are applicable to the balsam.

In any case our knowledge of the diseases of our balsam fir is meagre, so that to secure information on the pathology of this tree, which is finding such an extensive use in paper-making and to some extent as lumber, it will be necessary to begin at the foundation and work up.

There are three important butt rots of balsam and one heart rot. A preliminary description of them follows.

Type I.—This is a butt rot (the "brown butt rot" of the lumberman) found in the heart wood of the lower part of the trunk and the larger roots. It may extend ten to fifteen feet upwards into the trunk, but is commonly more restricted. It is the prevalent type in some stands—in very mature stands almost every tree being affected, while in other parts of the country it may be comparatively infrequent. This type is characterized by the heart wood being converted into a light brownish mass due to the removal of the cellulose, which in more advanced stages checks into more or less cubical masses, up to an inch or more in length. On being rubbed up between the thumb and fingers these masses readily pulverize just as does chalk or charcoal. The cracks between the masses

may partly fill the indefinite delicate white sheets of the fungus. This decay will eventually extend out almost to the bark, so that only a very thin shell of sound wood may remain. Such a butt rot is known to occur in all of the conifers, both in Europe and America. It has, on inconclusive grounds, been commonly referred to a fungus botanically known as *Polyporus Schweinitzii*. But our studies both in the field and in the laboratory so far have connected it with a fungus called *Polyporus balsameus* Peck. Culture studies have borne out this conclusion and association of the fruit bodies with the decay in the forest.

It is, of course, possible that *P. Schweinitzii* or even some other fungus may at times attack balsam, causing a similar type of decay. If such findings be established, then this type will be subdivided into Type Ia, Ib, etc.

Types II and III.—These are also butt rots, and are probably not dis-



Fig. 9.—Young balsam attacked by a fern rust (*Uredinopsis*).

tinguished from one another by the casual observer. They pass under the name of "feather rot" because of the light coloured, shredded or flaky rot that characterizes the later stages. This decay does not extend as far up into the trunk as Type I, but causes just as great a weakening of the butt. It is very abundant in some localities.

Type II is described in my field notes as follows: The newly decayed wood is clay colour or tawny olive, later a cinnamon buff. It is soon marked by tiny longitudinal pockets or cavities of indefinite length arranged in close concentric series, typically a single row in the fall wood of each annual ring. This results in the lamination or flaking of the wood, the decayed wood readily falling into sheets, each sheet consisting of an annual ring. The surfaces of these sheets, as one might expect, are etched. Eventually there is a shredding of the sheets due to the radial deepening of the longitudinal furrows. This continues until

the wood is reduced to cottony shreds, with at the same time a fading of the colour. In extreme cases the shreds may disappear to a greater or less extent, leaving the butt hollow. One of the curious features of this decay is the frequent occurrence of small black spots.

Type III is quite similar, but there is a tendency for radial perforations to form quite early in the decayed wood. There is also a delamination, (but more tardy), and an eventual shredding. With this type we have found *Poria subacida* associated as a causal agent.

Type IV.—This is a heart rot confined exclusively to the main trunk and in Quebec known as "hemlock rot" of balsam. In one case only so far have I found it extending down to the butt. This heart rot is probably the outstanding menace of the balsam stands of Eastern Canada at the present time. In some stands recently cut over 65 per cent. of the timber has been rejected from this cause, including what was left uncut because of its evident uselessness, and what was culled from the skids. Regarding its distribution we have little information other than what has been gathered in the course of our own investigations. It is found in Northern Ontario, and in Western Quebec, but how extensively we are as yet unprepared to state. It is extremely common in Middle and Eastern Quebec. There is, as yet, no report from Gaspé, the Maritime Provinces or the United States.

The heart wood of this rot is rather firm and of a reddish brown colour. As seen in a cross section of the trunk its outline is marked by radial extensions of the decay, these rays being up to half an inch in width. Sometimes instead of rays there is a more or less indefinite large-figured mottling. The decayed wood is typically wet and heavy. Indeed, affected logs float very badly; they are known to the lumbermen as "sinkers." On tracing this decay downwards it is found to pass into the "frost patches" or watery-looking spots commonly seen in normal balsam at the time of felling.

Infection has been found to take place through the lower dead branches or branch stubs, and the decay appears to work very rapidly up and down in the heart wood for long distances from these points. In addition, infection in tops injured by the bud worm are very frequent and the decay starting there may work down several feet. They are a frequent cause of the broken topped balsams so common in such stands—the "chicots" of the French-Canadian lumberjack.

Type V.—There is still a form that should be mentioned and that is a root rot due to the "shoe string" fungus or *Armillaria mellea*—one of the common and abundant toadstools. This fungus attacks the roots of trees that have just or recently died. It forms white sheets of fungus threads immediately under the bark and these may work up some distance under the bark of the stem. The sap wood is whitened and softened and occasionally the heart is affected. The fresh decayed wood and sheets of fungus threads are phosphorescent. Whether or not this fungus is the cause of the death of such trees is not known. In Europe it is regarded as a highly destructive parasite of certain kinds of conifers, but in America wide differences of opinion are held.

The control of the butt and heart rots of the balsam is fundamentally based on the age at which the host trees become susceptible to the attacks of the various types, and the rate of deterioration subsequent to infection. Regarding the "hemlock" rot of balsam in Quebec, Mr. W. E. Hiley, of the investigational staff of the Forestry School of Oxford University, found that more than half of the balsam trees over eighty years of age examined by him were affected, while those under sixty-five years of age were almost invariably sound. If this finding should prove to be general, a cutting cycle of sixty years would practically

avoid and eliminate this type. From our own analyses of butt-rotted balsams made in 1922 in the Temagami Forest Reserve we have found that balsams under sixty years of age are as a rule free from attack. But for all types many more analyses should be made before final conclusions can be reached.

Spruce Bud Worm.—At the request of the Federal Entomological Branch in 1921, an examination of dying balsam, primarily injured by the spruce bud worm, was made to determine to what extent fungi were responsible for the decadence of these trees. The first studies were made at Otter. It was soon discovered that the absorbing roots of such trees were dead, and that in consequence the trees were dying from inability to obtain water and nourishment from the soil. An explanation of the death of the roots seems apparent; injury to the foliage by the bud worm meant loss of the power to manufacture food, and the roots, dependent on such food, are starved and die. Thus a vicious circle is established. Mr. Hiley has also pointed out that the flow of materials in bud worm injured trees would be greatly lessened, because of the abrupt decrease in the size of the annual rings. That such a condition would affect the health of the tree is quite obvious. They, too, would in all probability the more quickly succumb to the attacks of butt and heart rot fungi. But as many of the dying or dead trees are free from butt and heart rot fungi, it is clear that the physiological disturbances are quite sufficient to cause their death. In the case of surviving bud worm injured trees it would be interesting to compare the ravages of the butt and heart rot fungi in them with what takes place in uninjured trees of the same class. Do such trees, for example, suffer more severely from the "hemlock rot", and if so, to what extent? Casual observations indicate that they do, but there are no data on this subject.

Indeed, from the standpoint of utilization, data should be collected relative to the subsequent history of balsam stands attacked by the spruce bud worm. Some trees die during the bud worm epidemic, but a large proportion survive. Then a few years after the epidemic has passed, as clearly stated by Mr. Hiley, "great numbers of the convalescent trees mysteriously died; and as this mortality continued for several years the loss appears in some places to have been as great as that which resulted from bud worm feeding."

3. BALSAM RUSTS.

The foliage of balsam (*Abies balsamea*) is subject to the parasitism of many rust fungi. In all cases these rusts parasitize an alternate host, so that there are two phases in their life cycles. Thus one alternates between the blueberry and the balsam, another between the fireweed and the balsam, a third (comprising several species) between various ferns and the balsam, a fourth between chickweeds and the balsam, and a fifth between willows and the balsam. The fern rusts of the balsam cause the greatest damage, especially to seedlings and younger trees. The others are probably of little or no economic importance at any time. The chickweed rusts of the balsam are the cause of the often large conspicuous crows' nests or witches' brooms common enough on the balsam in some localities.

The willow rust of the balsam appears as small open pustules on the affected needles. All of the others form small white or yellow cylindrical bladders on the discoloured (usually whitened) affected needles. These bladders, or peridermia, as they are called, break irregularly at their apices to discharge their spores; the latter are capable of infecting the alternate host only.

Two new species were described and named by Dr. H. P. Bell, in 1922, from abundant material discovered in the Temagami Forest Reserve. Both

are remarkable for their habit of parasitizing the older needles of balsam. One of them (*Peridermium pycnogrande* Bell) is found on needles from two to eight years old, and this rust is associated with and is probably the cause of a loose broom-like habit of growth of balsam branches very frequent in Temagami. This rust also appears to pass over to the polypody fern and to be represented there by a rust not before noted. The second new rust (*P. pycnoconspicuum* Bell) was found on needles three years old. Culture experiments indicate that this is the alternate phase of a rust on the oak fern, *Hyalopsora Aspidotis* (Peck) Magn., a rust which was believed to pass over to some conifer, but which one, if any, had not heretofore been demonstrated. The peridermia of the first are white and associated with deeply seated spherical pycnia, those of the second are yellow and associated with very large flat and shallow pycnia.

As a record of distribution a list of the balsam rusts found in Northern Ontario (all in the Temagami Forest Reserve) is appended with the names of the rusts as they are known on the various hosts.

ABIES BALSAMEA.	ALTERNATE HOSTS.
<i>Peridermium columnare</i> (O and I)	<i>Calypsotheca columbaris</i> (III),
(Blueberry rust of balsam).	on <i>Vaccinium pennsylvanicum</i> and <i>V. canadense</i> .
<i>Peridermium pustulatum</i> (O and I)	<i>Pucciniastrum pustulatum</i> ,
(Fireweed rust of balsam).	on <i>Epilobium angustifolium</i> (II and III) and <i>E. adenocaulon</i> (II and III).
<i>Peridermium balsameum</i> (O and I)	<i>Uredinopsis Osmundae</i> (II and III),
(Fern rusts of balsam).	on <i>Osmunda claytoniana</i> and <i>O. cinnamomea</i> .
	<i>U. mirabilis</i> (II and III),
	on <i>Onoclea sensibilis</i> .
	<i>U. Struthiopteridis</i> (II),
	on <i>Onoclea Struthiopteris</i> .
	<i>U. Phegopteridis</i> (II and III),
	on <i>Phegopteris Dryopteris</i> .
	<i>U. Atkinsonii</i> (II and III),
	on <i>Asplenium filix-foemina</i> .
<i>Peridermium pycnogrande</i> Bell (O and I) . . .	<i>U. polypodophila</i> Bell (II),
(Fern rust of balsam).	on <i>Polypodium vulgare</i>
	(connection with balsam not yet established by artificial infections).
<i>Peridermium pycnoconspicuum</i> Bell (O and I)	<i>Hyalopsora Aspidiotis</i> (II),
(Fern rust of balsam).	on <i>Phegopteris Dryopteris</i> .
<i>Peridermium elatinum</i> (O and I)	<i>Melampsorella elatina</i> (II),
(Chickweed rust of balsam).	on <i>Cerastium vulgatum</i> and <i>Stellaria graminea</i> .

Caeoma arctica with the alternate phase *Melampsora arctica* on willows has been found on balsam in Nova Scotia, but has not yet been reported for Ontario.

THE OCCURRENCE AND FREQUENCY OF SPECIES OF RIBES AND GROSSULARIA IN ONTARIO.

Report of Dr. G. H. Duff.

All present methods for the control of the White Pine Blister Rust, in places where it has already become established, are based upon the eradication of its alternate hosts, the currants and gooseberries. It is of great importance, therefore, to have an accurate knowledge of the different species of *Ribes* and *Grossularia* occurring in any region threatened by the disease, together with reliable information concerning their frequency and the correlation (if such exists) between the species and their frequency on the one hand and the forest and topographical conditions on the other. In fact, any information we acquire

concerning the oecology and biology of these plants may turn out to be useful, if not essential, to the formulation of a proper policy in respect to this problem.

The survey, the results of which are presented here, was undertaken with these considerations in view. The territory to be covered by the survey was determined by the fact that if large-scale eradication measures were ever to be adopted it would probably be along some line between the Ottawa River and Georgian Bay, and further, that even for the purposes of local eradication, information gathered in this territory would have a wide application on account of the variety of conditions encountered. Consequently, a beginning was made at Petawawa and Pembroke and, travelling along the line of the Grand Trunk Railway, the survey terminated at Parry Sound with sufficient observations on the Islands of Georgian Bay to make it certain that these must be taken into consideration in any wholesale eradication project. The only deviation from the line of the railway of more than fifteen or twenty miles was an excursion into Himsworth Township between Powassan and Lake Nipissing, undertaken on the advice of the district forester.

METHOD.

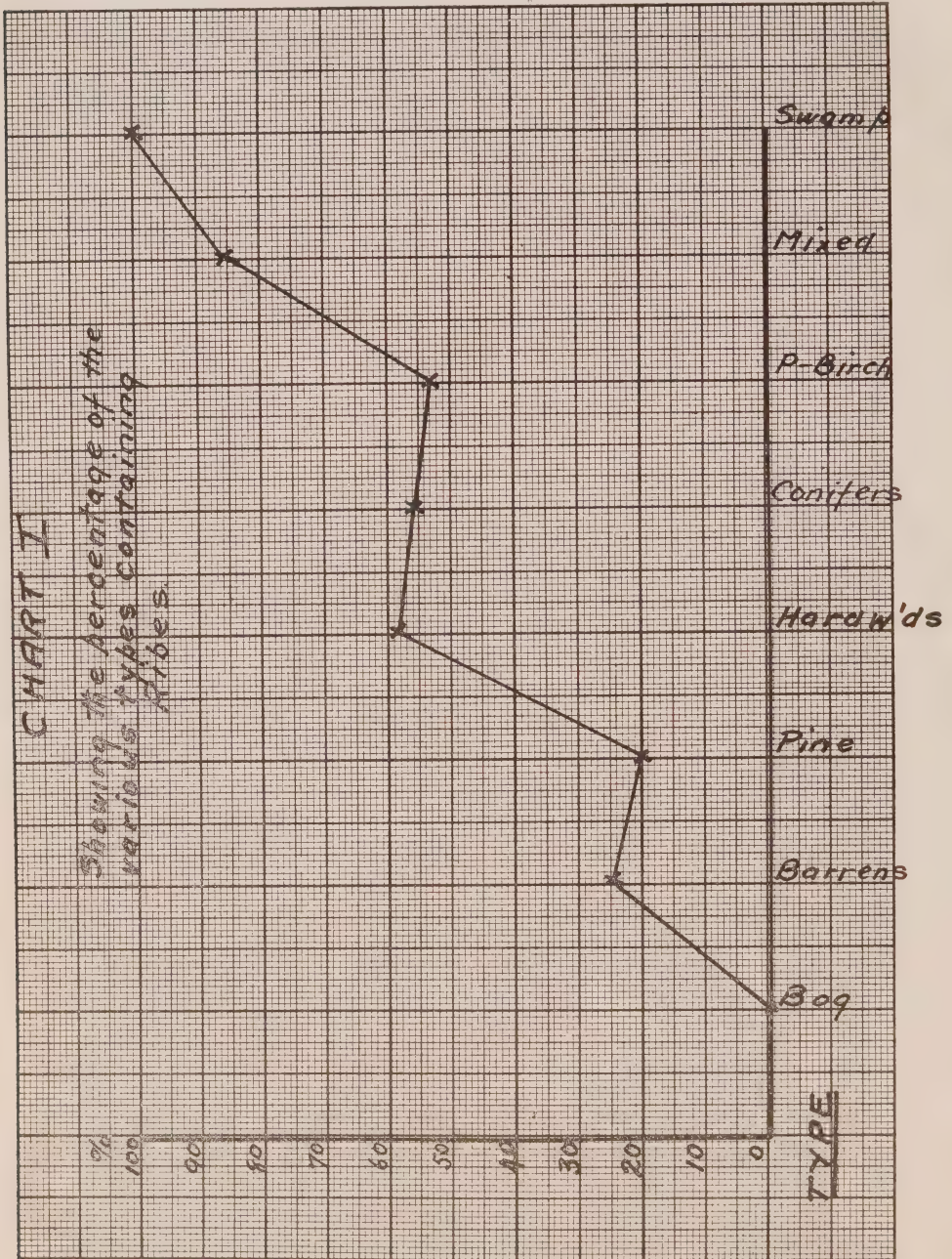
The mode of procedure was roughly as follows: On account of the desirability of visiting a suitable variety of localities the topographical and type maps of the district foresters' offices at Pembroke and Parry Sound were first consulted. In this way a route was planned such as would make possible the use of various stations along the Grand Trunk Railway as headquarters from which excursions could be made. In as far as possible the travelling was done on foot, though canoe and motor were used when necessary to reach desirable locations. When "on location" an intensive search for currants and gooseberries was made. If these were found the place was marked and the neighbouring territory was examined cursorily to see that the spot chosen was typical of the particular topographical or forest conditions represented at that point. If this turned out to be so a plot was measured out by tape-line usually 100 by 100 feet in size. In many cases this size of plot proved unnecessarily large on account of the number of currants and gooseberries found. In these cases a smaller plot 50 by 50 feet was adopted. The plot was divided into lanes ten feet wide and these lanes were carefully traversed up and down and the plants of the various species found counted and recorded. This plot was then considered a "station" and was located on the map and numbered. The notes taken were of the following sort:

<i>Station 63:</i>	Wolf Lake—Lot 19, Con. XII, Hunter Tp. Near portage from McIntosh Lake.	
<i>Topography:</i>	Fairly uneven, somewhat rocky, about 30° slope towards lake.	
<i>Forest Cover:</i>	Mixed second-growth. Hardwoods.	
<i>Ground Cover:</i>	Almost entirely young maple seedlings, fairly dense.	
<i>Soil:</i>	Deep litter, raw humus and humus 1½ inches, sandy loam beneath. Moist, but well drained.	
<i>Ribes:</i>	<i>Ribes glandulosum</i>	14
	<i>R. lacustre</i>	8
	<i>Grossularia cynosbati</i>	2
<i>Dimensions:</i>	50 x 50 feet.	

In all ninety-four such plots were established, embracing every topographical and forest type encountered.

The counting of gooseberry plants presents no difficulties on account of their more or less solitary habit. Nearly all the currants, however, and especially the skunk currant (*Ribes glandulosum*) propagate vegetatively and frequently form dense masses in which it is impossible to distinguish individual plants.

For the purpose of enumerating these species where they occur densely an arbitrary unit was evolved, based upon the maximum area of ground which can be freed from stem and foliage in a single up-rooting operation. This was fixed at about four square feet, and is, as these plants grow in that territory, a liberal allowance.



If search at any point failed to reveal the presence of currants or gooseberries, it was extended, many times for hours, until it was certain that these plants did not occur. The location was then given a station number, the usual notes taken and "no ribes" recorded.

Frequently in the eastern end of the territory the blister rust was found on currants. These cases were recorded and their locations and other details are presented elsewhere in this report. In each case the occurrence of the rust was given some attention and neighbouring pine trees were examined, but no pretence is made of having given this aspect of the problem exhaustive treatment.

RESULTS.

1. *Species occurrence*.—The following species occur:

- Ribes glandulosum* (skunk currant),
- “ *triste* (swamp red currant),
- “ *lacustre* (swamp black currant),
- “ *hudsonianum* (Hudson Bay currant),
- “ *americanum* (wild black currant),
- Grossularia cynosbati* (prickly gooseberry),
- “ *oxyacanthoides* (smooth gooseberry),
- “ *hirtella*
- “ *rotundifolia*

2. *Susceptibility*.—It is significant that all the species occurring in this territory are among the most susceptible to attack by the rust. According to an analysis by Spaulding (U. S. D. A. Bulletin 957) of inoculation experiments with these plants both in the greenhouse and out of doors, all except the Hudson Bay currant fall easy victims to the rust. There are no data on the susceptibility of this latter species. Though there is but little to choose between the others, the wild black currant is apparently the most susceptible, and the various species may be arranged in the following order on the basis of their susceptibility:

- | | |
|--------------------------------------|------------------------|
| 1. Wild black currant, | 6. Prickly gooseberry, |
| 2. Swamp red currant, | 7. Skunk currant, |
| 3. Swamp black currant, | 8. Smooth gooseberry, |
| 4. <i>Grossularia hirtella</i> , | 9. Hudson Bay currant. |
| 5. <i>Grossularia rotundifolia</i> . | |

3. *Distribution*.—Of the five species of currants, the skunk currant is overwhelmingly preponderant. All of them except the wild black currant are swamp forms. Nevertheless the skunk currant exhibits a remarkable versatility and was found in every type of locality, dry and moist, except under virgin white pine (on the Opeogo River) and in sphagnum bogs. The ground cover in a virgin pine forest is usually almost entirely wanting and in sphagnum bogs is composed exclusively of a very definite flora consisting of the moss, certain Ericaceae, pitcher plants, orchids, etc., so that the absence of the skunk currant here is not noteworthy. Four extensive bogs were examined to see if it could be found in this habitat, and though the plants occur around the edges in mucky soil or even in the clefts of rocks among ferns, they were never seen in the bog proper. It is hardly an exaggeration to say that in this territory the skunk currant is universally distributed.

All the other species of currants are of secondary importance from the point of view of distribution. In only three cases were other currants found growing

in places where the skunk currant was absent. Consequently from the point of view of the distribution of wild currants in the territory, the skunk currant is the limiting factor.

Of the gooseberries, the prickly gooseberry (*Grossularia cynosbati*) is the commonest and most widely distributed. This species also is cosmopolitan, having been found in all the habitats possible except sphagnum bog and swamp. In this case too, it is found practically wherever other gooseberries occur, very few exceptions to this rule having been noted. The smooth gooseberry *G. oxyacanthoides*) ranks next in distribution followed by *G. hirtella* (very similar to the smooth gooseberry) and *G. rotundifolia*. Nevertheless, here, as with the currants, one common and widely distributed species determines the distribution of the whole group.

4. *Frequency*.—The appended Table (I) shows an analysis of the number of times currants were encountered in various habitats and forest types.

TABLE I.

TYPE.	No. Stations.	Absent.	Few.	Moderate.	Numerous.
Bog.....	4	4 100%	.....	.....	.....
White Pine.....	10	8 80%	1 10%	.....	1 10%
Barrens.....	4	3 75%	.....	.....	1 25%
Hardwood.....	26	11 42%	2 8%	4 15%	9 35%
Other Conifers.....	16	7 44%	3 19%	1 6%	5 31%
Poplar-Birch.....	15	6 40%	2 13%	.....	7 47%
Mixed.....	7	1 14%	.....	3 43%	3 43%
Swamp.....	12	.....	.....	2 16%	10 84%

Legend.—Few: 1-5 plants per plot, 50 x 50.

Moderate: 5-25 plants per plot.

Numerous: Over 25 plants per plot.

Bog: Sphagnum bog only.

White pine: White pine stands, not necessarily pure.

Other conifers: Includes all conifers except white pines.

Barrens: Fairly recent burns.

Swamp: All swampy types included, except sphagnum bog.

Chart No. I is based upon the figures of the table. For the purposes of the chart, however, no account is taken of the numbers in which the currants occur, but it shows the percentage of the various types that contain currants, whether few, moderate or numerous.

From this chart it will be seen that the types fall into three groups on the basis of the percentage of cases in which currants occur:

1. Bog, white pine, barrens—small percentage or none.
2. Hardwoods, other conifers, poplar-birch—between 50 and 60%
3. Mixed and swamp—80 to 100%.

The figures of the table show, moreover, that where currants do occur, they frequently are present in large numbers, running up to several hundreds per acre.

Table II shows the number of times gooseberries were encountered in these same topographical and forest types, and Chart II is derived from this table in a manner similar to the way in which Chart I was derived.

TABLE II.

TYPE.	Stations.	Absent.	Few.	Moderate.	Numerous.
Bog.....	4	4	100%		
White Pine.....	10	4	40%		
Barrens.....	4	3	75%	1	25%
Hardwood.....	26	10	38%	3	12%
Other Conifers.....	16	7	44%	3	19%
Poplar-Birch.....	15	7	47%	2	13%
Mixed.....	7	4	57%	1	14%
Swamp.....	12	12	100%		

It will be seen that gooseberries are somewhat more uniformly distributed among the various types than currants. A comparison between Charts I and II shows that the percentages are practically equal in barrens, while the group consisting of hardwoods, conifers and poplar-birch is very uniform in both cases. For the rest, gooseberries are frequent where currants are infrequent and vice versa. Table II shows that gooseberries are not "numerous" as often as currants. This is chiefly because the unit in the case of gooseberries, is, on the whole, larger than that of currants. While the unit for currants was taken to be about four square feet of ground many gooseberry bushes grow to a size four times this.

Chart III shows graphically the percentages of the various types containing either currants or gooseberries. From it may be seen that apart from bog, swamp, mixed and barrens, all the types gather about 50 per cent. Of the irregular types swamp and mixed are as high as bog and barrens are low.

It may be concluded that there is an even chance that some species of currants or gooseberries will be found at any arbitrarily selected spot in the territory. Almost every foot of ground in this region is a potential bearer of one of the hosts of the blister rust.

The actual number of plants found per unit area in the various types is, of course, widely variable. The two species which chiefly determine the number of currants or gooseberries found in any given area are the ones that also delimit their distribution, namely the skunk currant, *Ribes glandulosum* and prickly gooseberry, *Grossularia cynosbati*.

The former species occurred in 69 per cent. of the stations established and in 29 per cent. was growing in great numbers, not often less than 50 and frequently over 100 plants per 10,000 square feet. In terms of acres this would mean from 200 to 500 plants. It is to be remembered in this connection that these represent maximum figures and that in 31 per cent. of the stations the skunk currant was absent entirely.

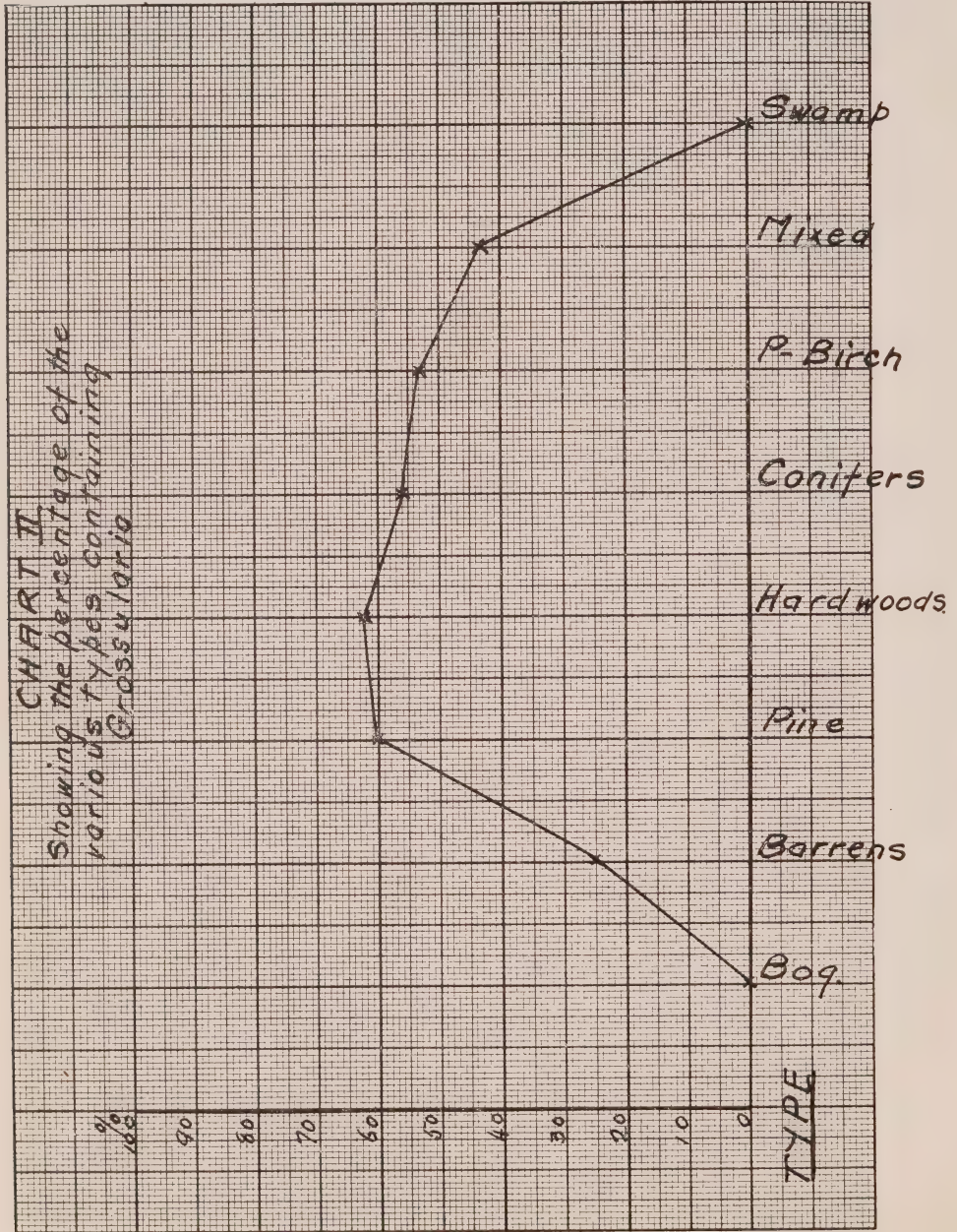
The other currants rarely exceed the skunk currant where they occur together. An exception to this might be made in the case of the swamp black currant (*Ribes lacustre*), which in a few instances was found to outnumber the skunk currant. In two such stations in Algonquin Park the currants were distributed as follows:—

<i>Ribes lacustre</i>	56	55
<i>R. triste</i>	20	15
<i>R. glandulosum</i>	11	46

The prickly gooseberry was found in 46 per cent. of the stations. The fact that it does not occur in swampy locations where there is a 100 per cent. occurrence of the skunk currant accounts in large part for this lower figure. In only

9 per cent. of the stations were these plants really numerous. The highest record for this species was at a station at Rainy Lake, where no less than fifty-four plants were counted in an area 50 by 50 feet. This is very unusual, however, and is to be explained by the fact that though in fairly deep shade, the mature bushes were fruiting heavily and the ground was dotted with young plants as a consequence.

Practically never do the other gooseberries outnumber the prickly goose-



berry where they occur together. One station at Seguin Falls showed twenty-three smooth gooseberry plants (*G. oxyacanthoides*) to eight prickly gooseberries, and this is the only one recorded of which this is so. This is also by far the largest figure for any gooseberry other than the prickly form.

The following table (Table III) shows maximum and average figures for the prickly gooseberry, skunk currant and total currants and gooseberries from stations arbitrarily selected. In each case the figures have been expressed as numbers of plants per acre. The minimum figure for each is 0.

TABLE III.

	Max.	Average.
Prickly gooseberry.....	544	61
Skunk currant.....	800	130
Total currants and gooseberries.....	1,600	180

Although such figures cannot be given any broad application or exact interpretation, they convey, in a general way, an idea of the numbers in which these plants may be found.

INCIDENTAL OBSERVATIONS.—(1) The occurrence of *Ribes glandulosum* completely hidden under a dense ground cover of young maple was noted in one place, and in another this species was found similarly growing under brambles. (2) The survival of gooseberries in burned over country was noted several times. This takes place chiefly where large rocks occur. The gooseberries become established in the crevices of the rocks, as well as close beside them and in this way are protected from ground fires. They are able to fruit abundantly in the light after the trees above have been removed by the fire and very soon seed dissemination takes place. Burning over certainly does not rid the country of these plants, in fact, by making possible the production of seed, the reverse is accomplished. (3) At several points in the eastern portion of the territory the blister rust was found in several species of currants and gooseberries. The species found infected were: *Grossularia cynosbati*, *G. oxyacanthoides*, *Ribes glandulosum*, *R. tris e*.

The infections in the case of *G. cynosbati* were several times very heavy indeed. All the other species, however, were only slightly affected. The places at which these observations of the rust took place were:

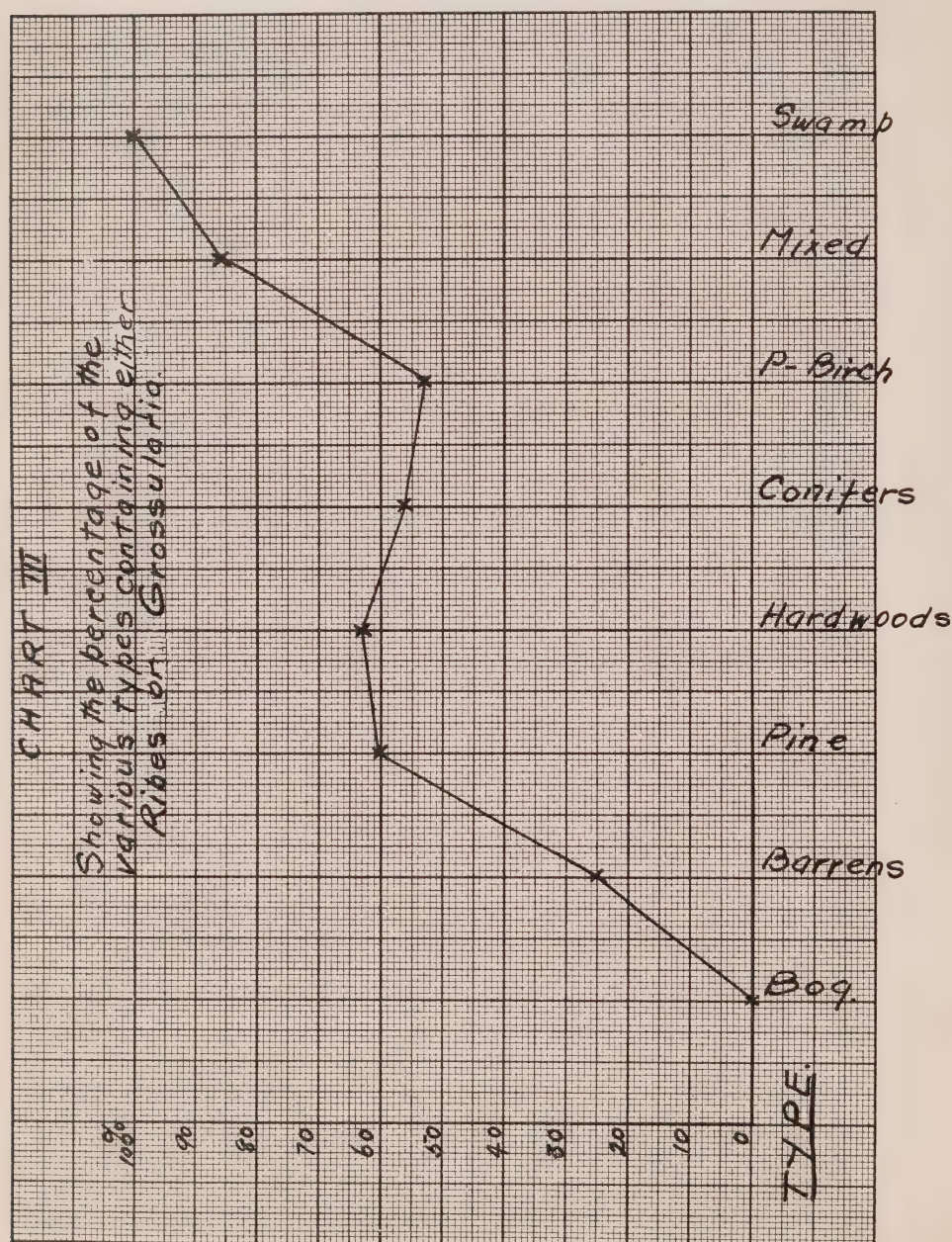
1. Lot 16, Con. VI, Petawawa Township.
2. On the outskirts of Pembroke, across from General Hospital.
3. Lot 20, Con. VIII, Alice Township.
4. Lot I, Con. XIV, Wilberforce Township.
5. B. N. 190, Sherwood Township.
6. B. S. 185, Sherwood Township.
7. Lots 14-15, Con. IV, Sherwood Township.

CONCLUSIONS.—The first thing to do in going about the eradication of currants and gooseberries is to locate the plants. It is not sufficient that some of them or even most of them should be located, all of them must be found.

To do this in an extensive territory would be greatly simplified if it could be shown that certain topographical and forest types are devoid of currants and gooseberries and consequently do not require inspection. The reverse has been the result of this survey. The distribution of currants and gooseberries has been shown to include every type except the sphagnum bog. In all but one of these cases their occurrence is in from 50 to 100 per cent. of the possible total. Consequently, no territory, however small, may safely be left uninspected.

The difficulty of inspection is increased when it is remembered that currants are sometimes found in most inconspicuous and unexpected places, such as beneath dense young maple seedlings or brambles and on rocky ledges among ferns. In such habitats it is an extremely difficult matter to find them.

Even if all currants and gooseberries are satisfactorily found, however, it next remains to uproot them. This must be done in such a way as to free the soil as completely as possible of their roots. If portions of root are left, especially



near the surface exposed to light, sprouts are sure to arise. The power of vegetative propagation is possessed by all currants and gooseberries, but the swamp forms are notorious in this respect. The skunk currant, the swamp red currant and the swamp black currant reproduce in this way much more regularly than by means of seeds.

The difficulty of uprooting is greatly enhanced where the plants grow among dense young maple seedlings or brambles. In such cases the whole ground cover must be completely uprooted and destroyed in order to make sure of the currants.

Finally, the difficulty and expense of eradication increases the larger the number of plants that must be handled. The survey reveals astonishingly large numbers in many places. This consideration alone would make it doubtful whether any large-scale eradication enterprise could be undertaken successfully except at a prohibitive expenditure. When all the factors are taken into consideration this conclusion would seem to be amply confirmed.

I have the honour to be, Sir,

Your obedient servant,

E. J. ZAVITZ,
Provincial Forester.

Toronto, Ont.,
October 31st, A.D. 1922.

Appendix No. 51.

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1921 Oct. 4.	1921 Nov. 1.	An area lying east of Stokes Bay and south of Pipestone River running into Rainy Lake, District of Rainy River	6½ sq. miles.	A. G. Murray, Fort Frances.	\$10.00 per M. ft. B.M. for White and Norway Pine; \$8.00 per M. ft. B.M. for Jack Pine; \$8.00 per M. ft. B.M. for Spruce; \$5.00 per M. ft. B.M. for Poplar; 6c. per tie for railway ties; \$2.00 per cord for Spruce pulpwood; 35c. per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Ties and Pulpwood.	39582
1921 Aug. 22.	1921 Nov. 10	Township 2 B., Mississauga Forest Reserve, District of Algoma.	36 sq. miles.	McFadden & Malloy, Spragge.	\$5.50 per M. ft. B.M. for Pine; \$2.50 per M. ft. B.M. for Spruce and Poplar; \$2.00 per M. ft. B.M. for other timber; 25c. per tie for railway ties; 75c. per cord for Spruce pulpwood; 75c. per cord for other pulpwood; 10c. each for Cedar posts, all in addition to Crown dues. <i>Cedar poles</i> —30 ft. and less in length, 25c; 31 to 40 ft. in length, 50c.; 41 to 50 ft. in length, 75c.; 51 ft. and over, \$1.00, all in addition to Crown dues.	Sawmill.	37698
1921 Sept. 21.	1921 Nov. 10.	Berth W.R. 4 A., District of Kenora.	53½ sq. miles	The Indian Lake Lumber Co., Ltd., per D. L. Mather, Winnipeg, Man.	\$7.50 per M. ft. B.M. for Pine; \$6.85 per M. ft. B.M. for Spruce and Poplar; \$5.40 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 75c. per cord for Spruce pulpwood; 50c. per cord for other pulpwood; 10c. per cord for fuelwood, all in addition to Crown dues.	Sawmill.	39599
1921 Sept. 16.	1921 Nov. 10.	Township of Jack, District of Sudbury.	36 sq. miles.	The Harris Tie & Timber Co., Ltd., Ottawa, Canada.	\$8.00 per M. ft. B.M. for R. and W. Pine; \$6.00 per M. ft. B.M. for Jack Pine, Spruce and Poplar and other timber; 10c. per tie for railway ties; \$1.00 per cord for Spruce pulpwood; 45c. per cord for other pulpwood, all in addition to Crown dues.	General lumber.	26405

1921 Oct. 31.	1921 Nov. 22.	Fowler Township—Lots 7 to 20 inclusive. Con. 1—South pts. 7 to 19 inclusive. Con. 2—being all that part of the lots lying south of Timber Berth A.L. 10 and Block D, in said township, District of Thunder Bay.	9½ sq. miles.	James T. Greer, Port Arthur.	\$8.00 per M. ft. B.M. for Pine; \$8.50 per M. ft. B.M. for Spruce; \$5.00 per M. ft. B.M. for Poplar; \$6.00 per M. ft. B.M. for other timber; 20c. per tie for railway ties; 50c. per cord for Spruce pulpwood; 25c. per cord for other pulpwood, all in addition to Crown dues.	Ties and pulpwood.	8616A
1921 Oct. 21.	1921 Dec. 10.	Township of Pardo, S.W. ¼: lots 6 to 11 inclusive, Con. 1; lots 6 to 12 inclusive, Con. 2; lots 6 to 12, Con. 3; District of Sudbury.	9½ sq. miles.	Mageau Lumber Co., Ltd., Field, Ont.	\$16.15 per M. ft. B.M. for R. and W. Pine; 25c. per tie for railway ties, all in addition to Crown dues.	Pine sawlogs.	40157
1921 Oct. 27.	1921 Dec. 10.	Lyman Township, Lot 4, Con. 5—Lot 4, Con. 6, District of Nipissing.	1 sq. mile.	Canadian Timber Co., Ltd., Toronto.	\$8.10 per M. ft. B.M. for R. and W. Pine; 30c. per tie for railway ties, all in addition to Crown dues.	Pine sawlogs.	39737
1921 Nov. 23.	1921 Dec. 17.	Unibach Township—Lots 13, 14, 15 and 16 in Con. 1, District of Kenora.	2 sq. miles.	Frank Haksell, Kenora.	\$2.50 per M. ft. B.M. for Pine, in addition to Crown dues; \$2.00 per M. ft. B.M. for Spruce, in addition to Crown dues; \$2.00 per M. ft. B.M. for Poplar, inclusive of Crown dues; \$1.50 per M. ft. B.M. for other timber, inclusive of Crown dues; 5c. per tie for railway ties in addition to Crown dues; 80c. per cord for Spruce pulpwood, inclusive of Crown dues; 40c. per cord for other pulpwood, inclusive of Crown dues; 25c. per cord for fuelwood, inclusive of Crown dues.	Ties, etc.	10744
1921 Nov. 23.	1921 Dec. 31.	Area S. of mileage 102 to 105 on the C.P. Ry., bounded on the north by C.P. Ry., and on the south by Pyramid Lake, vicinity of Sheba, District of Thunder Bay.	12 sq. miles.	J. J. Gracie, Fort William.	\$22.75 per M. ft. B.M. for Pine; \$9.78 per M. ft. B.M. for Spruce and Poplar; \$7.92 per M. ft. B.M. for other timbers; 8½c. per tie for railway ties; 35¼c. per cord for Spruce pulpwood; 10 7/8 cents per cord for other pulpwood; 31c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	7289A
1921 Oct. 28.	1921 Dec. 31.	East half of Sheraton Township, District of Temiskaming.	18 sq. miles.	Hawk Lake Lumber Co. Ltd., Moncton.	\$11.00 per M. ft. B.M. for W. Pine; \$5.50 per M. ft. B.M. for Jack Pine; \$5.00 per M. ft. B.M. for Spruce; \$2.00 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 50c. per cord for Spruce pulpwood; 25c. per cord for other pulpwood; 15c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and general Logging.	10870

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1921 Dec. 5.	1921 Dec. 31.	Lundy Township.—Lot 2, Con. 2. On the south half of said lot the Pine timber only was offered for sale, as this is a patented Veteran Claim.—District of Temiskaming.	1 sq. mile.	John Aitchison, New Liskeard.	\$2.00 per M. ft. B.M. for every description of timber in addition to Crown dues.	Sawlogs.	16080
1921 Dec. 17.	1922 Jan. 7.	The area north of the Township of McGregor.—District of Thunder Bay.	5¼ sq. miles.	Scott Lumber Co., Port Arthur.	\$8.50 per M. ft. B.M. for Pine; \$6.50 per M. ft. B.M. for Spruce; \$4.50 per M. ft. B.M. for Poplar; 21c. per tie for railway ties; \$1.50 per cord for Spruce pulpwood; 75c. per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Sawlogs.	16064
1921 Dec. 29.	1922 Jan. 19.	Lundy Township—South ½ Lot 2, Con. 5.—District of Temiskaming.	½ sq. mile.	John and Iabe Barnard, New Liskeard.	\$2.25 per M. ft. B.M. for Pine; 9c. per tie for railway ties, all in addition to Crown dues.	Sawlogs.	16080
1921 Dec. 30.	1922 Jan. 20.	Cane Township—South half Lot 10 in Con. 2.—District of Temiskaming.	½ sq. mile.	H. A. Palmer, Cane P.O.	\$1.50 per M. ft. B.M. for Jack Pine; \$1.50 per M. ft. B.M. for Spruce; 2c. per tie for railway ties, all in addition to Crown dues.	Ties, etc.	18645
1921 Dec. 30.	1922 Jan. 20.	Gorham Township.—Mining Location N. 8.—District of Thunder Bay.	1 sq. mile.	Elford Wray, Port Arthur.	\$8.50 per M. ft. B.M. for Pine; \$5.50 per M. ft. B.M. for Spruce and Poplar; 20c. per tie for railway ties; 80c. per cord for Spruce pulpwood; 50c. per cord for Balsam pulpwood, all in addition to Crown dues.	Pulpwood, etc.	19760
1921 Dec. 21.	1922 Jan. 16.	Areas comprising part of timber berth G. 33, and pt. of timber berth N. 7.—District of Rainy River.	5¼ sq. miles.	Geo. W. Hughes, Barwick, Ont.	\$5.00 per M. ft. B.M. for R. and W. Pine; \$3.00 for Jack Pine per M. ft. B.M.; \$2.50 per M. ft. B.M. for Spruce; 6c. per tie for railway ties; 50c. per cord for Spruce pulpwood, all in addition to Crown dues.	Pulpwood and Sawlogs.	39847
1922 Feb. 24.	1922 Mar. 10.	Glamorgan Township. Lots 20 and 21 in Con. 14.—District of Haliburton.	½ sq. mile.	Fred. Dart, Haliburton, Ont.	\$1.20 per cord for Spruce pulpwood; \$1.20 per cord for Balsam pulpwood; 60c. per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	26207

1922 Feb. 14.	1922 Mar. 14.	Township of Fauquier. A peninsula running into Remy Lake in the said township.—District of Cochrane.	2 sq. miles.	M. Maurice, Moonbeam, Ont.	\$2.15 per M. ft. B.M. for Spruce, in addition to Crown dues.	Sawlogs.	26805
1922 Mar. 22.	1922 April 24.	Beauchamp Township. — South half lot 9, south half lot 10, Con. 1.—Temiskaming District. Pine only on south half lot 9, Con. 1.	1/2 sq. mile.	Blair Rushton, Kenabeek, Ont.	20c. per M. ft. B.M. for Pine, in addition to Crown dues; \$2.00 per M. ft. B.M., for Spruce, inclusive of Crown dues; \$1.50 per M. ft. B.M. for other timber inclusive of Crown dues; 2c. per tie for railway ties in addition to Crown dues; 10c. per cord for Spruce pulpwood, in addition to Crown dues; 40c. per cord for other pulpwood, inclusive of Crown dues; 25c. for cordwood per cord, inclusive of Crown dues.	Sawlogs and Ties.	8923A
1922 July 13.	1922 Aug. 8.	Ware Township.—North half lot 6, Con. 6; lot 6, Con. 8; north half lot 7, Con. 8.—District of Thunder Bay.	1 sq. mile.	J. C. Greer, Port Arthur.	\$1.45 per cord for Spruce pulpwood; \$1.25 per cord for other pulpwood; 15c. per tie for railway ties; 10c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	19757
1922 July 10.	1922 Aug. 7.	Nipigon Township. West half lot 8, Con. 5.—District of Thunder Bay.	1/2 sq. mile.	Russell Timber Co., Ltd., Port Arthur.	\$18.79 per M. ft. B.M. for Pine; \$8.61 per M. ft. B.M. for Spruce; \$6.02 per M. ft. B.M. for other timber; 8 1/4c. per tie for railway ties; \$1.03 per cord for Spruce pulpwood; 33c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	17390
1922 July 12.	1922 Aug. 8.	MacLennan Township. — Parts of lots 8 and 9, Con. 5; lots 9 and 10, Con. 6; lots 9 and 10, Con. 7.—District of Sudbury.	1 sq. mile.	Clarke & Lounsbury, North Bay.	\$7.50 per M. ft. B.M. for Pine; \$5.00 per M. ft. B.M. for Spruce, Poplar, etc.; \$3.00 per M. ft. B.M. for other timber; 10 1/2c. per tie for railway ties; 20c. per cord for Spruce pulpwood; 15c. per cord for other pulpwood; 25c. per cord for cordwood (hard); 20c. per cord for cordwood (soft); 4c. each for Cedar posts, all in addition to Crown dues. Cedar Poles 30 ft. and less in length, 26c. each; 31 ft. to 40 ft. in length, 52c. each; 41 to 50 ft. in length, \$1.56 each; 51 ft. and over in length, \$3.21 each, all in addition to Crown dues.	Cedar Poles and Posts, etc.	25117
1922 July 12.	1922 Aug. 8.	Nipigon Township. — East half lot 8, Con. 8.—District of Thunder Bay.	1/2 sq. mile.	D. A. Clark, Port Arthur.	\$1.57 per cord for Spruce pulpwood; \$1.15 per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	10022

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 July 11.	1922 Aug. 8.	Bryce Township. — North half lot 2, Con. 3; north half lot 3, Con. 3; north half lot 4, Con. 3. — District of Temiskaming.	1 sq. mile.	J. L. McCauley and J. N. Robinson, Kenabeek.	\$5.25 per M. ft. B.M. for Pine, including Crown dues; 15c. per tie for railway ties, including Crown dues.	Sawlogs.	19762
1922 July 17.	1922 Aug. 8.	Sterling Township. — East half lot 7, Con. 5. — District of Thunder Bay.	½ sq. mile.	Russell Timber Co., Ltd., Port Arthur.	\$18.79 per M. ft. B.M. for Pine; \$8.61 per M. ft. B.M. for Spruce; \$6.02 per M. ft. B.M. for other timber; 8½c. per tie for railway ties; \$1.03 per cord for Spruce pulpwood; 64c. per cord for other pulpwood; 33c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	34146
1922 June 27.	1922 July 27.	Henwood Township. — North half lot 8, Con. 5. — District of Temiskaming.	½ sq. mile.	James Simpson, Kenabeek.	50c. per M. ft. B.M. for Pine, in addition to Crown dues.	Sawlogs.	10853
1922 July 13.	1922 Aug. 15.	Block D. situated on Pigeon River. — District of Thunder Bay.	13½ sq. miles	Hughes Bros. Timber Co., Ltd., Duluth, Minn., U.S.A.	\$20.00 per M. ft. B.M. for Pine; \$22.00 per M. ft. B.M. for Basswood; \$4.51 per M. ft. B.M. for Spruce; \$4.10 per M. ft. B.M. for Poplar; \$4.51 per M. ft. B.M. for Balsam; \$6.51 per M. ft. B.M. for Cedar; 11c. per tie for railway ties; \$2.56 per cord for Spruce pulpwood; \$2.00 per cord for other pulpwood; 25c. per cord for fuelwood; 3c. each for Cedar posts, all in addition to Crown dues. <i>Cedar Poles</i> 30 ft. and less in length, 12c; 31 ft. to 40 ft. in length 20c.; 41 ft. to 50 ft. in length, 30c.; 51 ft. and over, 35c., all in addition to Crown dues.	Pulpwood and Sawlogs.	41545
1922 July 17.	1922 Aug. 8.	Nipigon Township. — East half lot 5, Con. 6. — District of Thunder Bay.	½ sq. mile.	John W. Aho, Nipigon.	\$3.00 per M. ft. B.M. for Pine; \$3.00 per M. ft. B.M. for Spruce and Poplar; \$2.00 per M. ft. B.M. for other timber; 45c. per tie for railway ties; 95c. per cord for Spruce pulpwood; 85c. per cord for other pulpwood; 60c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	13772

1922 July 3.	1922 July 31.	Henwood Township.—North half lot 12, Con. 6.—District of Temiskaming.	1/2 sq. mile.	McCauley Bros., Kenabeck, Ont.	\$3.00 per M. ft. B.M. for Pine; 5c. per tie for railway ties; 25c. per cord for Cordwood, all in addition to Crown dues.	Sawlogs.	10521
1922 Aug. 11.	1922 Sept. 15.	An area in the vicinity of Jellicoe and Nezah Stations along the C. N. Ry. partly in the Nipigon Forest Reserve and immediately to the east thereof.—District of Thunder Bay.	77 1/5 sq. miles.	Western Stevedore Co., Ltd., Fort William,	\$3.50 per M. ft. B.M. for Pine; \$2.00 per M. ft. B.M. for Spruce, Poplar and Basswood; \$1.50 per M. ft. B.M. for other timber; 20c. per cord for Spruce pulpwood; 5c. per cord for other pulpwood; 2c. per tie for railway ties; 25c. per cord for fuelwood; 2c. each for Cedar posts, all in addition to Crown dues. <i>Cedar poles</i> , 30 ft. and less in length, 10c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 10c.; 51 ft. and over in length, 25c., all in addition to Crown dues.	Ties and Sawlogs.	43881
1922 Aug. 16.	1922 Sept. 15.	Gibbons Township.—Lots 1 to 10 inclusive, Con. 5, lots 1 to 9 inclusive, Con. 6.—District of Nipissing.	10 sq. miles.	Alfred Gignac, River Valley, Ont.	\$5.00 per M. ft. B.M. for Pine; 15c. per cord for Spruce pulpwood, all in addition to Crown dues. <i>Cedar Poles</i> —30 ft. and less in length, 10c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 15c.; 51 ft. and over, in length, 15c., all in addition to Crown dues.	Pulpwood and Cedar.	43590
1922 Aug. 14.	1922 Sept. 15.	Lutterworth Township.—Lot 27, Con. 11; Lots 26 and 28, Con. 12.—District of Haliburton.	1 sq. mile.	Samuel Bryant, Norland, Ont.	\$75.00 per M. ft. cubic, being Crown dues only.	Sawlogs.	25366
1922 Aug. 14.	1922 Sept. 15.	Nipigon Township. — East half lot 7 in Con. 4; east half lot 8 in Con. 4.—District of Thunder Bay.	1/2 sq. mile.	Arvo Paju, Port Arthur.	\$7.50 per M. ft. B.M. for Pine; \$5.00 per M. ft. B.M. for Spruce and Poplar; 50c. per M. ft. B.M. for other timber; 35c. per tie for railway ties; \$1.70 per cord for Spruce pulpwood; \$1.60 per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	33772
1922 Aug. 23.	1922 Sept. 20.	Field Township.—North half Lot 15, Con. 1.—Lots 14 and 15, Con. 2.—Lot 14, Con. 3.—S. half Lot 14, Con. 4.—District of Nipissing.	2 sq. miles	HonoreTurenne, Verner, Ont.	\$7.00 per M. ft. B.M. for Pine; \$5.00 per M. ft. B.M. for Spruce and Poplar; \$2.00 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 80c. per cord for Spruce pulpwood; 40c. per cord for other pulpwood; 1c. each for Cedar posts; 10c. per cord for fuelwood, all in addition to Crown dues. <i>Cedar poles</i> —30 ft. and less in length, 25c.; 31 to 40 ft. in length, 50c.; 41 to 50 ft. in length, 60c.; 51 ft. and over in length, 75c., all in addition to Crown dues.	Cedar and Pulpwood.	27821

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Aug. 24.	1922 Sept. 20.	Part of Timber Berth No. 6, south of Ash Bay.—District of Rainy River.	3½ sq. miles.	Angus Shaw, Fort Frances.	\$3.50 per M. ft. B.M. for Pine, in addition to Crown dues; \$2.00 per M. ft. B.M. for Spruce and Poplar, inclusive of Crown dues; 80c. per cord for Spruce pulpwood, inclusive of Crown dues; 5c. per tie for railway ties, in addition to Crown dues.	Pulpwood and Ties.	42417
1922 Aug. 24.	1922 Sept. 20.	Area lying north of Township of Halkirk on the north shore, and between Black Sturgeon Lake and Red Gut Bay.—District of Rainy River.	4 sq. miles.	Shevlin-Clarke Co. Ltd., Fort Frances, Ont.	\$14.10 per M. ft. B.M. for Pine; \$7.05 per M. ft. B.M. for Spruce; \$6.05 per M. ft. B.M. for Poplar; \$6.55 per M. ft. B.M. for Jack-pine; 8c. per tie for Jack Pine ties; 80c. per cord for Spruce pulpwood; 30c. per cord for other pulpwood, all in addition to Crown dues. <i>Cedar poles</i> —30 ft. and less in length, 10c.; 31 to 40 ft. in length, 15c.; all in addition to Crown dues.	Sawlogs.	43520
1922 Sept. 20.	1922 Oct. 5.	Gorham Township.—South half Lot 2, Con. 7.—District of Thunder Bay.	½ sq. mile.	John Keivu, c/o Scott Lumber Co., Port Arthur.	\$2.25 per cord for Spruce pulpwood; \$1.35 per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	18216
1922 Aug. 24.	1922 Oct. 16.	South half Shackleton Township.—District of Temiskaming.	40½ sq. mls.	Hawk Lake Lumber Co., Ltd., Monteith, Ont.	\$12.00 per M. ft. B.M. for Pine; \$1.80 per M. ft. B.M. for Spruce and Poplar; 70c. per railway ties; \$1.00 per cord for Spruce pulpwood; 45c. per cord for other pulpwood; 15c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Sawlogs.	16067
1922 Sept. 22.	1922 Oct. 31.	Berth No. 4-G.—Mississauga Reserve.—District of Algoma.	36 sq. miles.	Hope Lumber Co., Ltd., Thessalon, Ont.	≈ \$8.26 per M. ft. B.M. for Pine; \$2.50 per M. ft. B.M. for Spruce, Poplar or Basswood; \$2.00 per M. ft. B.M. for other timber; 25c. per tie for railway ties; 75c. per cord for Spruce pulpwood; 75c. per cord for Balsam and other woods; 10c. each for Cedar posts, all in addition to Crown dues. <i>Cedar poles</i> —30 ft. and less in length, 25c.; 31 to 40 ft. in length, 50c.; 41 ft. to 50 ft. in length, 75c.; 51 ft. and over in length, \$1.00, all in addition to Crown dues.	Sawlogs.	42318

1922 Sept. 22.	1922 Oct. 31.	Berth No. 4-H.—Mississauga Reserve.—District of Algoma.	36 sq. miles.	Hope Lumber Co., Ltd., Thessalon, Ont.	\$7.76 per M. ft. B.M. for Red and White Pine, in addition to Crown dues.	Sawlogs.	42318
1922 Oct. 2.	1922 Oct. 31.	Northeast quarter Township of Henry.—District of Nipissing.	9 sq. miles.	Mageau Lumber Co., Ltd., Field, Ont.	\$9.00 per M. ft. B.M. for Red and White Pine; \$9.00 per M. ft. B.M. for Jackpine; \$2.50 per M. ft. B.M. for Spruce; 5c. per tie for railway ties; 21c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 2c. each for Cedar posts, all in addition to Crown dues. <i>Cedar Poles</i> —30 ft. and less in length, 30c.; 31 to 40 ft. in length, 31c.; 41 to 50 ft. in length, 41c.; 51 ft. and over, 51c., all in addition to Crown dues.	Sawlogs.	11635
1922 Sept. 22.	1922 Oct. 31.	Sherlock Township.—District of Sudbury.	81 sq. miles.	Continental Wood Products Co., Ltd., Elsas, Ont.	\$2.00 per M. ft. B.M. for White Pine; \$1.00 per M. ft. B.M. for Red Pine; \$1.00 per M. ft. B.M. for Jackpine; \$1.00 per M. ft. B.M. for Spruce, Poplar or Basswood; 75c. per M. ft. B.M. for other timber; 2c. per tie for railway ties; 15c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 5c. per cord for fuelwood; 3c. each for Cedar posts, all in addition to Crown dues. <i>Cedar Poles</i> —30 ft. and less, 15c.; 31 to 40 ft., 20c.; 41 to 50 ft., 25c.; 51 ft. and over, 50 c., all in addition to Crown dues.	Pulpwood and Sawlogs.	12334

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Sept. 26.	1922 Oct. 25.	Berths Nos. 3 and 4.—Munlock Township.—District of Nipissing.	7¼ sq. miles.	Herbert Brennan, Hamilton, Ont.	<p><i>Berth No. 3.</i> \$3.00 per M. ft. B.M. for Jackpine; \$2.00 per M. ft. B.M. for Spruce, Poplar or Basswood; 50c. per M. ft. B.M. for other timber; 10c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 5c. per tie for railway ties; 3c. each for Cedar posts; all in addition to Crown dues. <i>Cedar Poles</i>—30 ft. and less in length, 5c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 20c.; 51 ft. and over, 40c., all in addition to Crown dues.</p> <p><i>Berth No. 4.</i> \$8.50 per M. ft. B.M. for Jackpine; \$5.50 per M. ft. B.M. for Spruce, Poplar or Basswood; \$3.20 per M. ft. B.M. for other timber; 80c. per cord for Spruce pulpwood; 55c. per cord for other pulpwood; 15c. per tie for railway ties; 6c. each for Cedar posts, all in addition to Crown dues. <i>Cedar Poles</i>—30 ft. and less in length, 30c.; 31 ft. to 40 ft. in length, 50c.; 41 ft. to 50 ft. in length, 80c.; 51 ft. and over, \$1.25, all in addition to Crown dues.</p>	Sawlogs.	1817
1922 Sept. 27.	1922 Oct. 31.	An area lying south and west of Greenwater Lake, near Kashabowie.—District of Thunder Bay.	25 sq. miles.	E. E. Johnson, Port Arthur, Ont.	\$10.00 per M. ft. B.M. for Pine; \$7.50 per M. ft. B.M. for Spruce; \$5.50 per M. ft. B.M. for Poplar; 12c. per tie for railway ties; \$1.22 per cord for Spruce pulpwood; 90c. per cord for other pulpwood; 25c. per cord or fuelwood; 2c. each for Cedar posts, all in addition to Crown dues. <i>Cedar Poles</i> —30 ft. and less in length, 15c.; 31 to 40 ft. in length, 60c.; 41 to 50 ft. in length, 80c.; 51 ft. and over, 90c., all in addition to Crown dues.	Pulpwood and Sawlogs.	16083

Appendix No. 51.—Continued
Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

When granted.	Locality.	Area.	To whom granted.	Price paid.	Proposition.	File No.
1921 Nov. 15.	Township of Irving, (North half) Township 27, Range 23; Township 28, Range 22.	113 sq. miles.	Algoma Central & Hudson Bay Railway Co., under authority of 63 Victoria, Chap. 30, Sec. 9.	\$5.00 per M. ft. B.M. for pine timber; 2c. each for railway ties, all in addition to Crown dues.	Ties.	175
By Order in - Council dated 24th, Aug., 1922.	Lyman Township (Pt.) Lots 1 to 12 inclusive, Con. 1, 2 and 3; Lots 2 to 12 inclusive, Con. 4; Lots 5 to 12 inclusive, Cons. 5 and 6.—District of Nipissing.	31½ sq. miles.	Petawawa Lumber Co., Ltd., Pembroke, as compensation for surrendering to the Crown timber limits situate within the Townships of Hunter and Devine in the Algonquin Provincial Park.	\$5.00 per M. ft. B.M. for Red and White Pine, in addition to Crown dues.	Sawlogs.	39737
By Order in - Council dated, 24th Aug., 1922.	East half Township 41; west half of Township lying immediately east of Township 41; south half of the Township lying immediately north of Township 41, known as the Township of Lang; southwest quarter of the Township lying immediately east of the Township north of Township 41, known as the Township of Lang.	18 sq. miles. 18 " " 18 " " 9 " " respectively.	Austin & Nicholson Limited, Chapleau, in order that areas over which it was alleged the firm trespassed during the past few years, might be cleaned up.	\$3.10 per M. ft. B.M. for Red and White Pine; \$2.10 per M. ft. B.M. for Jackpine; \$3.00 per M. ft. B.M. for Spruce; 20c. per cord for pulpwood; 1½c. each for railway ties, all in addition to Crown dues.	Ties and Sawlogs.	332

Appendix No. 52.

DR. JUDSON CLARK'S REPORT.

TORONTO, August 12th, 1922.

*Hon. E. C. Drury, Premier of Ontario,
Parliament Buildings, Toronto.*

DEAR SIR,—Complying with your request, I beg to submit what in my judgment might be done to better the administration of the public forest lands of the Province of Ontario:

I.—DEPARTMENTAL REORGANIZATION.

I am convinced that the outstanding need of the present, and for much time that is past, is the placing of the administration of the provincial forests in the hands of a competent forest engineer under the Minister of Lands and Forests.

The man for the position must be a forest engineer of thorough training in his profession, of proven capacity as an executive, and wide business experience and outlook. The logical position for such a man in the Department of Lands and Forests should be that of Commissioner of Forests; though of much greater importance than the name of the position would be an entire freedom, under the responsible Minister, to develop the department along business lines so that the provincial forests may increasingly be a greater provincial asset and an ever increasing source of provincial revenue.

No words of mine are needed to emphasize the vast interests involved or the vast opportunity for service afforded in this matter. I might, however, be pardoned for adding a personal conviction that this position affords the greatest opportunity for a constructive work open to the members of the forest engineering profession on this continent, and your Government should be able and willing to command the services of the best available man. Were I looking for such a man for a similar position in my own business, I would not hesitate to pick Mr. E. T. Allen, of Portland, Oregon, as the man who would best work out the problem. I am sure that the professional opportunity for a great public service would appeal to him strongly. Whether he could make the financial sacrifice involved in giving up his present work, I am not so sure.

The present Department of Lands and Forests, as the name indicates, calls for two distinct, though closely related, departments of public service. The present volume of detail work coming to the desk of the Deputy Minister of Lands and Forests makes it entirely impossible, even with much overtime work, to find the necessary leisure for study of the larger problems of policy and administration. It is even impossible for the Deputy to have that personal contact with the workings of his department inside and out, which is so necessary if progress is to be made. The present enormous volume and prospective growth of departmental work in caring for the public forests and public lands amply justify the division of this great department into two separate departments, which might be termed the Department of Forests and the Department of Lands, both remaining as now under the responsible care of the Minister of Forests and Lands.

In organizing a Department of Forests for the care of the public forest lands, it would be logical and in the highest degree desirable that all forest

interests should be included under the one administrative head. For example, the administrative care of the provincial parks and of all minor forest products, such as game and fisheries, would naturally find its place in this Department.

Having created a separate Department of Forests, and appointed a Commissioner of Forests, who from a business standpoint will always mean the business manager of the public forests, this business manager must be required and permitted to manage the public forest business. That is to say, the public which deals with the department must quickly learn that he is the real executive officer, to carry out the policies, laws and regulations of the Department as enacted by the Legislature or ordered by the responsible Minister.

It is high time that all the public having business with this great department should understand that hard luck stories of sick wives and children, personal losses and interesting angles of local political situations and such, have absolutely no place as a part of a business transaction having to do with the care of the public forest lands or the sale of the public forest products. For many years the harassing of the Minister and his secretary with personal and other appeals in the settlement of simple business matters, fully covered by law and departmental regulations, has wasted a vast deal of exceedingly valuable time, and greatly hindered the regular functioning of the Department.

II.—SUNDRY OTHER MATTERS.

Should the Department be reorganized along the lines suggested, it may safely be left to the forestry staff, in conjunction with the responsible Minister to work out the further reorganization in the office and in the field. I shall, however, as you request, comment on some of those problems which my previous connection with the Department and long acquaintance with its work have convinced me need special attention at this time. In this I have been greatly helped by the information made available to the public by the Timber Commission who have so long and carefully examined into the affairs of the Department, and by the courtesy of the department officials who have assisted my inquiry in every way possible.

(1) RE MEASURING WOOD.

The modern diversity of wood products has long since antiquated the measurement of the main forest product—wood—by the Doyle rule, the Scribner rule, Clark's international rule or any other *product* rule. The forest administration of the Province sells *wood*, and it should not in the measurement of that wood concern its mind with what the purchaser may do with it after he has bought it and paid for it. The Province should sell its customers just so much wood; so many cubic feet of wood; and let the buyer saw it into "feet board measure" with a good or bad saw or a good or bad sawyer (getting, of course, from the same sized logs various quantities of "feet board measure"); or let him pulp it, or burn it for fuel. Why, indeed, should the forest administration be concerned if a customer should convert the wood, which is sold and paid for, into sugar and eat it, or distil it for moonshine and drink it?

The ridiculous side of using a *product* unit instead of a *volume* unit in measuring wood has not been generally appreciated. This is no doubt due to the fact that we can in time become accustomed to almost anything (we have used the present product unit for over forty years), and perhaps more especially to the circumstance that the evils of a product unit were of gradual development as the methods of manufacture and the uses of wood gradually changed. Should

a gasoline merchant decide to measure his gasoline on the basis of the *mileage* that he *thought his customers ought to get* in their various cars, or the number of pairs of gloves that they ought to be able to clean with the gasoline, his troubles would be well begun.

The troubles of the Province with its habit of measuring the wood it sells by a *product (board feet) unit* instead of a volume (*cubic foot*) unit, have long since been well begun, and have bred much undeserved loss and unearned gain, also endless suspicion and controversy.

There can, of course, be no question that the cubic measurement of wood is the ideal measurement. It is also clear that it is entirely practicable. It is, indeed, much the simplest means of measurement for future sales. Happily, it is already being used by the Department of Lands and Forests in a large way in the scaling of pulpwood and the cullers are, therefore, already familiar in a practical way with measuring wood according to its cubic contents. Its adoption for all wood measurements would quickly dispel the absurd belief held by many citizens that the lumbermen are a class of semi-professional robbers and that they are even aided and abetted by the Department itself. This absurd and exceedingly vicious impression has been the result of the using of a *product* unit instead of a volume unit in the measurement of its logs, plus the said circumstance that the Doyle rule, which has been the official rule in Ontario since October 18th, 1879, is the very worst of its class in that it is less and less a true measure of value as the logs grow smaller. And the average logs coming to the mills of the Province are apparently forever growing smaller, paradoxical as that may sound.

On the other hand, the Doyle rule has been the official rule of the Province for many years, during which period many timber limits have been sold. And it must be clearly kept in mind that when bids were made for these timber limits at public auction or by sealed tender they were based on the scale the Doyle rule would give under the conditions then obtaining. It is, therefore, of course, obvious that any change in the manner of measurement must have regard to the equities thus established. It should also be appreciated by the public that in maintaining these equities the lumberman is getting nothing but his own, and the Province is being paid the full value of the timber sold as determined at the time of sale by public competition.

If then the equities as between buyer and seller were correctly adjusted at the time of sale, why suggest a change to cubic measurement? The answer has already been given. The Doyle rule, by virtue of its unscientific construction, is less and less a true measure of volume in logs as it is applied to the smaller and ever smaller logs that are being cut.

The following table shows the increasing volume of wood required to produce one thousand feet board measure, as scaled by the Doyle rule:

Diameter of logs in inches.	No. of cubic feet required to give 1,000 feet board measure as scaled by Doyle Rule.	Additional per cent. of volume required as logs decrease in diameter.
inches.	cu. feet.	per cent.
30	123	...
25	134	9
23	139	12
21	146	19
19	155	26
17	167	36
15	185	50
14	196	59
13	211	71
12	230	87
11	256	108
10	293	138
9	349	184
8	442	260
7	621	405
6	1,070	770
5	3,140	2,453

Here is the crux of the whole problem of wood measurement. *One thousand feet* board measure scaled by the Doyle rule has long been the unit of measurement by which all logs sold have been paid for. Had this been a *stable* unit (i.e., remaining essentially the same in practical effect from year to year) even though entirely unscientific, there would be no good reason for change. It, however, is not a stable unit—far from it, and for two fundamental reasons:

- The logs now cut on Crown Lands average much smaller than formerly, and the tendency is still downward.
- The Doyle rule underscales all logs below thirty inches in diameter, and as the diameters decrease, the Doyle rule becomes an increasingly unfair measure. When applied to logs of twelve inches in diameter or under it becomes a joke.

The decreasing size of the average log cut on all operated timber limits is a matter of record in vaults of the Department of Lands and Forests.

The practical effect of this decrease in size when the Doyle rule is the measure is strikingly shown by the table above. For example, if the average log is 17 inches in diameter, 167 feet are the equivalent of 1,000 Doyle scale. If the average log be 10 inches in diameter, 293 cubic feet are required to scale 1,000 Doyle rule. If the average log were but 7 inches, no less than 621 cubic feet would be required to yield 1,000 by Doyle.

This is the demonstration that the Doyle rule—by virtue of its unfair scale of small logs and its ever increasing unfairness as the logs become smaller, together with the established fact that our logs are smaller from year to year—profoundly disturbs the equities established between the lumbermen and the Province at the time the timber was sold.

Fortunately the full and complete records of the scaling from year to year on all timber limits, available in the files of the Department of Lands and Forests, afford the means of readily determining the correct converting factor for trans-

lating the Doyle scale into its cubic volume equivalent, which will preserve undisturbed the equities established by the sales contracts, for there can surely be no truer index as to what the purchaser had in mind to buy when he made his bid than what he actually cut after the bid was accepted.

For greater clearness, let us assume the case of a timber sale in 1906 at \$12.00 per 1,000 Doyle scale, (the \$12.00 covering both Crown dues and bonus). Here the lumberman bids \$12.00 for the amount of logs that will scale 1,000 feet, board measure, by the Doyle rule. By reference to the records of the timber cut on that limit during 1907 it will quickly be found just how many cubic feet of logs were required to yield the 1,000 feet, board measure, Doyle rule, he was paying for. If a more conservative basis were desired, the converting factor might be based on the cut of the two seasons following the timber sale, thus in case of the sale in 1906, used as an illustration, the converting factor might be based on the returns on the timber cut on the limit during the two following logging seasons of 1907 and 1908. If the average log cut on this limit during the two years following the sale should prove to be thirteen inches in diameter it would take 211 cubic feet of logs to give the lumberman his 1,000 feet as scaled by Doyle. Thus we find an exact parity between \$12.00 per 1,000 feet as scaled by Doyle rule, and \$12.00 for 211 cubic feet as measured by actual volume, and during the years 1907 and 1908 the amount of money paid the Province by the operator on this limit would have been the same whether paid on the basis of \$12.00 per 1,000 feet, Doyle rule, or \$12.00 for each 211 cubic feet, or in other words, \$5.69 per hundred cubic feet. And if in all subsequent years the lumberman operating on this limit had paid his Crown dues on a basis of \$5.69 per hundred cubic feet, he and the Province would each be rightfully receiving what they were entitled to under the contract entered into at the time this timber was sold.

From this example it will be clear that a converting factor that gives equitable adjustment as between buyer and seller may quickly be worked out for every scale that has been made since the Doyle rule was adopted in 1879, and once determined, this converting factor is valid as long as the contract obtains.

For timber limits disposed of before 1879 it would be equitable to accept the *then relation between Doyle rule and its cubic volume equivalent* as determined by the cubic volume and scale of the average log cut during, let us say, the five-year period following the adoption of the Doyle rule, namely; 1880 to 1884.

In its practical application to those old timber limits, a change from the Doyle rule scale to a cubic volume scale as suggested above will increase the amount of Crown dues paid into the Provincial Treasury. It is evident, however, that it is equitable that an owner of these old timber limits should not receive more cubic feet of wood for his unit of Crown dues than he did in 1880 to 1884. A change to cubic volume measurement with an adjustment by a converting factor (obtained as outlined) *merely makes a correction for the fact that the Doyle rule requires so much more cubic volume of wood to scale one thousand feet board measure with our present small logs than it did with the larger logs, 1880-1884.* In other words, under this adjustment the limit owner would again be receiving the identical volume of wood per unit of Crown dues which he received in the early eighties. The practical effect on the amount paid for logs cut from areas recently sold will be slight; in some cases possible nil. In any event, any change obtaining will be, as has been shown, equally fair to buyer and seller.

(2) RE CHECKING CULLERS' SCALING.

The Timber Commission made a timely reference to the desirability of all cullers being employees of the Department, and of the necessity of properly checking their work in the woods, and particularly pointing out the importance of marking all skidways so that the check scalers would have every opportunity to make a real check of the work of the cullers in determining the amount of wood cut on which Crown dues are payable.

These recommendations are obviously entirely sound, and I am very pleased to find that the matter of establishing a checking of the scale on all operations, and the closely related and very necessary detail of marking each skidway, has already been adopted by the Department of Lands and Forests, and has been in effect during the past year. I would suggest as an additional aid to the check scaler, that the number of logs reduced for defect be noted for each skidway on the culler's report.

The discounting logs for defect is undoubtedly a procedure in which there now obtains a great diversity in judgment and method, with corresponding differences in the scale returned. An occasional—perhaps an annual—cullers' conference at a convenient milling point, which would provide facilities for practical demonstrations, would be most helpful in promoting accuracy and, therefore, uniformity in scaling methods and results. The discussions and exchanging of ideas on such an occasion would also greatly contribute to the same result.

(3) RE SHANTY BOOKS.

In time it may be found that the check-scaling of the culler's work which now obtains on all limits, is a sufficient check on the accuracy of the cullers, returns on which the provincial forest revenue is computed. Until that is demonstrated, however, the "Shanty Book" record should be retained and made more effective than it has been in the past. To this end I am glad to pass on the suggestion of the provincial forester that all shanty books be serially numbered so that they may be all readily accounted for at the end of the season. Also, they should be paged so as to prevent the possibility of removal of pages containing original records. The desirability of the record being made daily, and the affidavit being taken as provided by statute and Departmental Regulations has been forcefully pointed out by the Timber Commission.

(4) RE MEASUREMENT OF PULPWOOD.

Already a considerable proportion of the pulpwood of the Province is being measured by cubic volume because of the greater convenience to all parties of this method of measurement.

The determination of a converting factor which will accurately express the wood volume relation between the cubic foot unit and the standard cord of stacked wood measuring eight feet long by four feet wide by four feet high, and containing 128 cubic feet of wood, bark and air spaces, is, of course, a simple matter, and can probably be obtained from measurements already in the Department. The writer made a number of careful measurements with different sizes of pulpwood in Northern Ontario some years ago, but has not now the results at hand. The study, however, indicated that a correct converting factor for different sizes of pulpwood ranged from about eighty-five to ninety-eight cubic feet per cord; a converting factor of 100 cubic feet per cord would be a conserva-

tive and a very convenient converting factor. The 115-cubic-foot converting factor now in use is from 15 per cent. to 25 per cent. above actual wood volume.

(5) RE METHOD OF SELLING TIMBER.

Prior to 1906 sales of timber limits were conducted on the basis of inviting bids for a lump sum, known as a "bonus" which was to be paid in cash at the time of the sale, this bonus being the sum which the purchaser was willing to pay over and above the regular Crown dues, which in all cases are paid as the timber is cut.

Since 1906, the bids have been invited on a per 1,000 foot basis; the amount bid to be paid together with the Crown dues as and when the timber is cut. The payment of the entire purchase price as and when the timber is cut has many advantages over the former system. Perhaps the greatest advantage is the better prices which are realized under this plan of sale. The fact that higher prices may be realized, is due, in part, to the fact that a much larger number of lumbermen can compete at a sale where the timber is to be paid for as cut, as purchases under this plan are much more easily financed. It also implies a much less expensive examination of the tract by the prospective purchasers in advance of the sale, in as much as this examination would confine itself chiefly to the quality of the timber and the cost of logging, a knowledge of the approximate amount of the timber being sufficient when the payment is to be made on a measured basis as the timber is cut.

It has been urged by some that the former system of a lump sum "bonus" was desirable from a standpoint of immediately interesting the lumbermen in a larger financial way in the tract, and thus enlisting his very especial interest in protecting it from fire; also that the comparatively small payment for the timber as it was cut presented but little temptation to improperly influence the culler in the measurement of the logs. As regards honest measurement, it may be admitted that in lessening the amount that a thief can get, one somewhat decreased the risk of theft. The thing to do, however, in the measurement of wood sold by the Province is to make it impossible for anyone to steal it and get away with it. The improvements suggested in this report in conjunction with what the Department has already done during the past year, as noted above, will, I am sure, speedily end any such practice. It is, of course, true that the larger the financial interest of the owner, the greater is his interest in preventing fire. Efficient fire protection can, however, best be developed by provincial organization. There are many reasons for this. Sufficient here to say that the safety of any particular tract is in a very large measure assured by work done far beyond its boundaries. In any event the added interest of the lumbermen owner in protecting from fire a limit purchased on the lump-sum-bonus plan is not a value that has been created by the method of sale. The fire hazard, which the lumberman necessarily assumes under these circumstances, is a factor which he as a business man must have discounted for at the time he made his bid to purchase the tract.

(6) RE SELLING SMALL QUANTITIES OF TIMBER.

The Shevlin-Clarke case has clearly shown that large timber sales made in recent years without public competition were not legally so made. It would appear that there is not any essential legal difference between the lack of authority for the selling of these larger tracts and the apparent lack of authority for the granting of permits to cut small quantities of timber, cordwood, ties, etc.

It is, of course, in the best interests of the forests, of the settlers, and of all concerned that the Department should have a clear legal mandate to sell such small parcels at prices adjudged fair by the responsible officers of the Department without public competition, which in such small matters would be quite impracticable; such authority should, of course, be properly safeguarded as to the amount so sold, and the time and matter of removal.

(7) NOTICE OF NEW OPERATIONS.

A point that has been overlooked in the administration of the forests has been a failure to require operators to notify the Department before a logging operation is begun. This is desirable from every point of view, and is especially necessary from the standpoint of the fire hazard, and for the proper supervision of the logging operations and the scaling of the log output. Wide publicity should immediately be given of an order making such notice mandatory and immediately effective.

(8) FIRE PROTECTION.

Fire prevention, and the early detection of such fires as do occur, together with efficient fire fighting, form the very foundation of all forest management.

Much progress has been made in recent years by the Department of Lands and Forests in all these matters. Prevention of fires set by locomotives will illustrate the progress made in one detail as a result of persistent and intelligent work:

YEAR.	Percentage of locomotives reported defective by Department Inspectors.	Percentage of fires in the Province caused by railways.
	Per cent.	Per cent.
1917	28.3	49.5
1918	32.1	46.5
1919	21.8	37.0
1920	12.8	23.9
1921	8.3	14.8

The disposal of the debris incident to logging operations promises to be one of the largest problems to be solved by the coming forest administration. It is my conviction that at best fire prevention and fire fighting will, from time to time—as the seasons vary—be a losing battle so long as the brush is left to litter the ground where the future forest must be grown. For the present I am confident that a requirement that all brush lying within specified distances of all buildings, machinery, tote roads, railroads and other points of frequent human contact be piled and burned, is immediately justified. Such cleaning up is obviously as much in the interest of the operator as it is in the interest of the Province. I understand that a start has already been made in this matter by the Fire Ranging Department. It should be made obligatory on all operators.

(9) RE RECORDS.

It appears to me that the testimony of Mr. Grigg, the former Deputy Minister, before the Timber Commission, gives a decidedly wrong impression as to the efficiency of the bookkeeping in the Department of Lands and Forests. I am confident that an investigation by competent parties will show that while

it may not have been as thoroughly modern in its form as it might have been, it has always been done with scrupulous care. During the past year the system has been much improved by the introduction of more modern methods. Mr. Grigg's testimony in this connection to the effect that with proper reorganization the Department might become "a handsome money-maker," might, I fear, convey the impression that the bookkeeping methods were such as to cause the Province a monetary loss. While this implication might not have been intended, it may be reassuring to some people to know that not a penny of the Province's money has been lost in this way. A careful checking of the system now in use leaves me with but a single suggestion, namely, that the Audit Department should widen its sphere of activity to include an annual audit of the departmental records.

Exception has been taken to the failure of the Department to promptly collect all accounts immediately when due. I am not in a position to say whether there has or has not been undue leniency on the part of the Department regarding overdue accounts, but every business man must appreciate that there are many times when a creditor's best interest is served by reasonable leniency in regard to the collection of secured debts. And I can easily imagine that there have been times during the past few years of severe business depression, when the public interest could have been very badly served by the Department seizing and selling the lumber of the delinquent companies, which, of course, they have a perfect legal right to do. This could only have the effect of making a bad situation very much worse. In extending reasonable leniency in the case of secured overdue accounts, the Department is simply following the best business practice.

The Timber Commission has pointed out that the rate of interest charged on overdue accounts, namely, six per cent. simple interest, is unfair to the Province, and in effect makes the Province to some extent a banker to the lumberman. This point is well taken. I would suggest that the interest rate be made to conform to current banking usage, both as regards rate and the compounding of accumulated interest, plus perhaps an additional one per cent. in the rate.

(10) FOREST RESERVES.

Several large areas of provincial forest lands have been set apart as Forest Reserves. The statute provides that timber may not be cut on those reserves areas except when mature or when killed by fire. I submit that this leaves them on a par with all other forest lands, except that such reserved lands may not be cut over for the purpose of opening up for agricultural settlement.

It will be the duty of the forest administration to prevent the cutting of timber on non-agricultural lands, except as and when it is silviculturally mature or has accidentally been killed by fire, just as it will be their duty to see that all silviculturally mature timber is sold and cut from time to time as the best interests of the forest and the markets for wood products require.

Respectfully submitted,

Yours very truly,

(Sgd.) JUDSON F. CLARK.

Appendix No. 53.

SUBDIVIDED AREA OF PROVINCE TO END OF 31st OCTOBER, 1922

DISTRICT OF MANITOULIN.

Township:

	Area
Surveyed portion of Manitoulin Island, including Barrie and Cockburn Islands.	1,000 sq. miles.
Surveyed islands in north shore of Lake Huron and throughout the north part of the Province, approximately.....	200 " "

Summary:—

Area in Province of Ontario south of French River, Lake Nipissing and Mattawan River.....	50,482 sq. miles.
Area district of Nipissing, north of French River subdivided.....	1,827 " "
Area district of Timiskaming subdivided.....	1,994 " "
Area district of Sudbury subdivided.....	4,428 " "
Area district of Algoma subdivided.....	2,976 " "
Area district of Cochrane subdivided.....	6,842 " "
Area district of Thunder Bay subdivided.....	1,883 " "
Area district of Kenora subdivided.....	1,118 " "
Area district of Rainy River subdivided.....	1,245 " "
Area Manitoulin Island and other islands.....	1,200 " "
Total.....	<u>73,995</u> sq. miles.

L. V. RORKE,
Director of Surveys.

October 31st, 1922.

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1923

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

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1924



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Report of the Minister of Lands and Forests of the Province of Ontario

For the Year Ending 31st October, 1923.

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

In accordance with the provisions of the Public Lands Act I have the honour to submit for the information of Your Honour and the Legislative Assembly a report for the fiscal year ending the 31st day of October, 1923, covering the operations of the various services under the jurisdiction of the Department of Lands and Forests.

The services are so different and the operations under them so diversified that my preface must of necessity be rather general, the treatment of each being more exhaustively dealt with under its special appendix.

LANDS.

During the past year the interest of the prospective settler has been manifested by the large number of inquiries made from different sources and requests for information relative to the attractive features of homestead land in the arable sections of the Crown domain. In actual land transactions in the way of entries for free grant locations there has been a slight decrease compared with last year, but in sales of lots for settlement purposes the yearly average has been maintained.

Ever-increasing interest is taken in the Great Clay Belt where the opportunities of hewing out and making permanent real homes are presented. The alluring features of this great tableland, with its ready supply of pulpwood to tide over the settler in his pioneer years, and its richness of soil, have considerably encouraged active settlement. A recent official tour of Northern Ontario revealed the extensive areas cleared and brought under cultivation within recent years and the vigorous efforts of individual settlers, who are generously treated by the building of roads, seed-grain supplies and advances in the way of Government loans on easy terms. The general demand of the newer sections is more roads and when reasonable assurances are granted that such will be forthcoming the settlers' hopes are continued and their efforts furthered in the way of formulating plans for encouraging friends to settle near by and thus develop community life.

Sales of lots in Government Town Plots showed a substantial increase over the preceding year, a noticeable example being at Kapuskasing on the Transcontinental Railway, where a thriving centre is now firmly established as was predicted in 1917. A large up-to-date pulpmill is being operated by the Spruce Falls Company. The land contiguous to the town is practically all occupied by actual settlers, much of it being well cleared and extensively utilized, one settler practically within the town limits having, in addition to his substantial clearing,

a large number of cattle, an important dairy industry and, above all, unbounded confidence in the agricultural future of the section. This successful settler is one of its original soldier settlers of the Farm Colony, whose faith in the North's potentiality and persistence in the trying years have been amply rewarded.

A contemplated paper mill and a further development of the pulp industry at this point assure a larger community and a local market for the settlers' products. This situation is but typical of other points in the Great North.

While the appalling fire of October, 1922, that ravaged an extensive area in the fine farming section of the Southern Clay Belt traversed by the Temiskaming and Northern Ontario Railway, resulted in severe losses, the sufferers, through well directed Government and other organized effort, are rapidly recovering. The fire-swept centres are fast rising from the ruins of but a year ago and the substantial building programme already carried out with the projects under way indicates clearly the indomitable energy of the people and their unending faith in Greater Ontario.

CLERGY.

Under this heading the sum of but \$134 was received on old sales. This source of revenue has been practically exhausted as nearly all old sales have been cleared up.

COMMON SCHOOL.

The sum of \$1,418.89 was realized from this source, but this was all on account of the payment of long-standing arrears.

GRAMMAR SCHOOL.

An occasional sale made in years gone by is consummated by the occupant of land paying up and acquiring patent. An amount of \$196 was collected in this class.

UNIVERSITY.

Lands set apart for the support of the University were sold to the extent of 3,163 acres, for \$1,806.89.

CROWN.

Agricultural and Townsites revenue amounted to \$107,900.26 while lands leased for various purposes brought a return of \$87,632.01. The total area sold and leased comprised 154,018.94 acres.

FREE GRANTS.

No additional free grant land has been opened recently, consequently the suitable areas are becoming considerably less each year. In the area of land located during the year a decrease is shown, a total number of 718 persons selecting land as compared with 1,013 last year. During the same period, however, 113 parties purchased a total area of 5,757 acres adjacent to their homesteads. A total area of 90,143 acres was located to new applicants and 54,349½ acres were patented to 411 settlers who completed their clearing and cultivation during the past 12 months.

For various reasons it is expedient in some cases for settlers to exchange lots or assign to other settlers and make new and more suitable selections. To enable more satisfactory settlement in this respect, 225 settlers assigned their holdings covering 28,080 acres.

PURCHASED LANDS.

There has been a very marked increase in the area sold during the year, from 121,817 acres last year to 138,130 acres. The number of settlers in sale territory continued to increase last year, reaching 978, while the previous year 894 settlers purchased land.

As a result of continued and systematic inspections the speculator is being eliminated, and the settler encouraged in completing settlement. It was necessary to cancel only 355 sales during the year, which is about one-third the number cancelled in 1922. Compared also with the previous year, when 140,775 acres were cancelled, it was necessary to cancel only 52,273 acres, while the increase in patents is 143, the total number being 471. This improved condition of affairs not only affects local conditions but very materially assists municipal organizations and community life generally.

RANCHING LANDS.

The ranching industry is somewhat on the increase. Last season was exceptionally dry with the result that sufficient winter fodder in some instances was not produced. More careful selections of grazing areas are being made of land which is naturally well watered. The sheep-raising industry is being continued, a very substantial herd being now ranched north of Cochrane on the T. & N. O. Ry. extension.

Fur-farming is also on the increase and considerable marsh areas are being acquired, particularly for the protection and propagation of muskrats. The areas leased are as follows:

Ranching.....	3,570 acres.
Fur farming.....	26,104 acres.

MILITARY GRANTS.

Under Act 1 Edward VII, Cap. 6, and amendments thereto, there have been issued 13,998 Military Certificates.

As a result of legislation last year, limiting the time in which to locate to the 30th April, 1923, a larger percentage of the outstanding certificates have been located or surrendered to the Crown.

There were 21 certificates surrendered to the Crown for the \$50 commutation money. The small number thus surrendered is accounted for by the fact that the land is worth more than the cash value of the certificate.

During the year 273 certificates have been located on 41,823 acres, making a total of 8,686 certificates actually located on land.

There were 480 acres purchased by three certificates being applied in payment thereof, making a total of 806 certificates which have been thus applied on land.

Of the locations already made under certificates 220 were covered by patents issued during the year, making a total of 7,750 which have been thus disposed of by the Department.

A large area, 15,752 acres, which had been located to 100 veterans who neglected to perform settlement duties within the time required by the Act, was cancelled and the land redeemed by the Crown.

The total number of certificates that have therefore been disposed of is 12,802, leaving 1,196 that are still outstanding.

ACCRUALS AND COLLECTIONS.

The total accruals for the year's timber and pulpwood operations totalled \$3,708,410.23, although the entire revenue of the Department amounted to only \$2,693,421.14, or about one and three-quarter million dollars less than the preceding year, this being partly due, it is believed, to the inability of certain lumber firms to liquidate their assets covering the season's cut until it was too late to remit before the end of the fiscal year and also to the closing of the collecting year on time and not extending it into the following month as was the practice within recent years.

It must also be borne in mind that included in the 1922 revenue was over \$420,000 paid in by Shevlin-Clarke Co. in settlement of the legal action the then Government had taken against the Company.

The sale of Agricultural Lands and Townsites with Crown Leases, including Provincial Parks, etc., amounted to \$209,535.85; Casual Fees \$1,858.41; Refund Items \$96,595.44. From the Woods and Forests the Revenue was \$2,385,431.44, made up of the following items: Bonus \$931,013.87; Timber Dues \$1,152,068.90; Ground Rent \$97,545.08; Transfer Fees \$7,915.15; Fire Protection \$196,888.44. (See Appendix No. 4, page 24.)

It should be pointed out that timber dues outstanding at the end of the year amounted to \$2,561,405.88, in addition to \$154,804.85 for ground rent and fire charges, and as the bush operations for the ensuing season are expected to be equally as large as during the last it is confidently predicted that the revenue column will be considerably enlarged next year. While the uncollected revenue from timber operations may be regarded as high it must be remembered that the Crown holds as collateral at the end of the year, in the form of cash deposits alone, some \$1,979,121.20, without regard to additional protection in the form of personal and Guarantee Company bonds.

DISBURSEMENTS.

The total expenditure, less Civil Government, of the Department for all services (exclusive of those rendered under the Northern and North-Western Ontario Development Acts, for which see Appendices Nos. 40 and 41), was \$3,621,233.95. Some of the more important items were: Crown Lands Agents' Salaries and Disbursements \$23,437.99; Homestead Inspectors \$27,032.24; Crown Timber Agents \$42,873.05; Fire Ranging \$1,067,202.22; Forest Ranging and Measurement of Timber \$487,046.91; Reforestation \$214,547.12; Algonquin Provincial Park \$46,747.67; Quetico Provincial Park \$10,870.55; Rondeau Provincial Park \$14,377.72; Surveys \$168,277.80; Colonization Roads \$827,855.98; Commissions re Sundry Investigations \$28,518.90; Litigation of Constitutional and Other Questions \$18,047.93; Special Warrants \$424,387.02; Clearing Townsites and Removing Fire Hazards \$99,896.73. (Additional details are found in Appendix No. 6.)

The entire expenditure for the year ending 31st October, 1922, as set out in the Public Accounts for that year, was \$4,649,622.28 for all services operated and controlled by the Department of Lands and Forests, while the Expenditure for the year just closed on 31st October, 1923, is slightly over seven million dollars, or a total increase in round figures of \$2,405,000.

This increase is made up as follows, round figures being used in each case:

Outside Service and Surveys	\$ 715,000
Colonization Roads	156,000
Northern Development Branch Statutory Expenditures	1,188,000
Special Warrants	346,000

\$715,000—Outside Service and Surveys.

Over 50 per cent. of this increase is due to an extension to the Fire-ranging Vote. During the past year the timbered areas of the Province were visited by unprecedented fires and the entire outside fire organization had to be largely augmented and special provision made to meet emergent conditions and unexpected demands were thereby made upon the Crown.

Forest-ranging: Over 25 per cent. of the increase is due to the additional expenses involved in paying the scalers, all of whom are now appointed and supervised by and under the direct control of the Government represented by the Department. But while this increase is shown the fact remains that a large percentage—over half—of this money ultimately comes back as revenue to the Crown, because under the system obtaining the timber operators in some instances return the full 100 per cent. and in others 50 per cent., according to contract, of the scalers' expenses to the Crown.

Clearing townsites of fire hazards accounts for \$90,000. Surveys of townships, the running of meridian lines, etc., required \$13,000 beyond last year.

Reforestation cost over \$60,000 beyond the previous year, this being due to the adding of two new forest stations and properly equipping them, and also enlarging by several millions the nursery stock of the forest station at Norfolk.

\$156,000—Colonization Roads.

Increased requests for direct and by-law grants for colonization roads to provide for the township needs required over \$150,000 in excess of the year 1922.

\$1,188,000—Northern Development Branch.

This by far is the biggest increase in the expenditure under the jurisdiction of the Department of Lands and Forests it being provided for by Statutory enactment, the Government enactment being the Northern and Northwestern Development Act. This additional amount was devoted to the building of new trunk and lateral roads, making permanent improvements to old ones—the putting in of culverts, and the general supervision of roads in the north country; persistent and insistent demands emanating from the newer sections were emphasized by reference to the extensive expenditures on the public highways in old Ontario and to the claims that older Ontario was being more favoured than the newer part; the encouragement of settlement, the promotion of industry and the general desire to link up the various settled portions in the North with connecting roads, prompted, no doubt, the added expenditure in the road items. In addition to the increased expenditure on roads generous relief was granted to the settlers in the way of supplying seed and furnishing necessities subsequent to the great fire in the fall of 1922. This catastrophe increased the expenditure under the heading of assistance to settlers, which is included in the Northern Development expenditure, by over \$275,000. Farm implements have been purchased and supplied to the fire sufferers on standing collateral.

\$346,000—Special Warrants.

The increase in Special Warrants of over \$300,000 is more than accounted for by a Special Warrant of \$400,000 having been passed as the result of a surrender from and a treaty with the Mississauga and Chippewa Indians covering some 21,000 square miles in the northern part of old Ontario, to which area the Indians claimed title, no surrender ever having been made to the Crown. Under a special agreement made in May, 1923, between the Provincial and

Dominion Governments a Commission was appointed and empowered to get surrenders and execute Treaties, which has been done on the basis of a compensation of \$500,000, of which \$100,000 is yet to be paid.

BUSH OPERATIONS.

Logging: Evidences of an improved tone in the lumber market, following the somewhat pessimistic outlook in 1921 and part of 1922, and of an assurance that dealers contemplate a continued demand for building material are reflected in the bush operations during the past season.

The output of pine, the basic log timber from Crown Lands for sawlogs, boom and dimension timber, approximated 325,000,000 feet B.M., or over 75,000,000 feet B.M. more than the previous year, while sawlog timber, other than pine, was cut to the extent of 50,000,000 feet B.M., possibly 13 per cent. less than the preceding season. A considerable increase is recorded in the cut for piling purposes.

Pulpwood to the extent of over 400,000 cords was cut from Crown Lands during the last fiscal year as against less than 300,000 cords for 1922. In addition over 200,000 cords were cut free of dues, this coming from settlers' lands.

PULPWOOD INDUSTRY.

New mills opened at Kenora, where the Backus Company have an installed daily capacity of eighty tons, and at Kapuskasing, where the Spruce Falls Company are producing seventy-five tons pulp daily. At Kenora a paper mill is being built to be operated in connection with the pulp mill, while at Kapuskasing the Company is contemplating the erection of a paper mill.

Operations are under way at Fort William towards the erection of pulp and paper mills by the Great Lakes Company, while extensions have been made on the plant at Nepigon formerly held by the Nepigon Fibre Company but now controlled by Guaranty Investment Corporation, Limited, who will reopen the mill on a sixty-ton daily capacity basis.

The completion of the new mills at Fort William and Nepigon and the determined efforts of the Fort William Pulp and Paper Company, the Thunder Bay Company and Provincial Paper Mills at Port Arthur, to continue operations to their limit, assure a permanency to the pulpwood industry at the head of the Great Lakes and makes certain a ready market in the near future for the full development of the great hydro power at Cameron Falls on the Nepigon River.

A new and important pulpwood industry is being projected by the Continental Wood Products, Limited, at Elsas, on the Canadian National Railway, some two hundred miles west of Sudbury, where the Company are obliged to erect a kraft-mill, which will consume, not only spruce and balsam but much of the poplar, tamarac, jackpine, etc., hitherto unmarketable. A large sawmill is now in operation and the pulp plant will probably be completed by the end of the year 1924, as the site has been selected and plans put under way for the starting of construction in the spring of 1924.

The establishing of this industry is in pursuance of an agreement made between the Crown and the Company on the 10th July, 1923, as the result of the purchase by the Company under public competition of an area of 1,049 square miles, situated in the watershed of the Trout and Chapleau Rivers in the Districts of Sudbury and Algoma. A 75 ton kraft pulp mill employing an average of 100 persons for 10 months of each year, and costing at least one and

one-half million dollars, must be in operation before June 1st, 1925, and a paper mill of at least 35 tons capacity when the Crown directs. (For Agreement see Appendix No. 46, page 228.)

To enable the Spanish River Pulp and Paper Mills, Ltd., now operating three large mills at Sault Ste. Marie, Espanola and Sturgeon Falls, to have additional raw material to supply their existing concerns or extensions thereof or additions thereto, a special agreement was made with the Company under the Crown Timber Act whereby an area approximating 3,000 square miles in the Districts of Algoma and Sudbury was granted. The agreement was made 15th May, 1923, and certain prices fixed by Order-in-Council, 13th September, 1923, such prices, however, to obtain for two years only. (See Appendix 44, page 219.)

Under date of the 12th July, 1923, an agreement was made between the Crown and the Abitibi Power and Paper Company for an area of 2,500 square miles more or less in the District of Cochrane. This Company owns and operates at Iroquois Falls, on the Abitibi River, a large pulp and paper mill of a daily output of 400 tons newsprint, and consistent with a desire to ensure continuous operation and the employment of a large number of workmen, the Crown granted this additional area, the agreement to be approved and prices fixed by Lieutenant-Governor in Council. (For copy of said agreement see Appendix 45, page 224.)

For a complete list of timber sales throughout the year and the prices received see Appendix No. 43, page 208.

There are several Crown Timber Agencies throughout the Province and as no regular audit or inspection of their office records or methods was in force it was found necessary to appoint an official to discharge this duty. As the varied operations throughout the forest regions of the Province have become most extensive and each District Agent is restricted to his own territory it was deemed advisable for the purposes of establishing reasonable uniformity and properly correlating the different operating services to have a general supervisor of bush operations. It was considered in the interests of economy and efficiency that the dual responsibilities of inspecting agencies and supervising operations could be exercised by the same individual; consequently an official was duly appointed in the person of Major J. I. Hartt, a practical bushman of long and wide experience, who is now functioning with good results.

GENERAL.

Timber surveys and cruises were continued with a view to estimating the timber wealth, air craft being utilized in collaboration with land parties. Important cruises were made in the Nepigon Forest Reserve to acquire first-hand knowledge of the timber and watershed situated there to enable the Department to more readily deal with the important and varied questions arising at the head of the lakes with respect to continued service to and assured permanency of existing pulpwood industries, all of which are of necessity linked up to the Hydro-Electric development of this region.

Valuable detailed information was secured by the Forestry Branch through the air service in conjunction with land parties, on the Mississauga Forest Reserve. The residents of the north shore of Lake Huron and likely investors are keenly interested in the future development of the great natural resources of this reserve, and the inventory now being made will be utilized in reaching a conclusion on the best methods of handling the resources.

The fire-ranging staff was faced with a herculean task the past year by reason of the abnormal drought that continued uninterruptedly in certain

regions. Considerable areas were burnt, but fortunately these cannot be charged as a distinct loss to the Crown, as sales were made of scorched and burnt limits on reasonably fair prices in order that the timber might be cut and removed before becoming uncommercial. Complete statements of the fire ranging operations may be found under its own appendix.

Lands under License: The area covered by Timber License where the holder pays regulation ground rent and fire charges at the end of the year, 31st October, 1923, was \$17,768 $\frac{3}{4}$ square miles.

Pulp Concessions: Area covered by pulp concessions exclusively amounts to 36,938 square miles, on which fire charges at the rate of \$3.20 per square mile are payable.

SUMMARY OF TIMBER REVENUE.

Bonus.....	\$931,013 87
Timber Dues.....	1,152,068 90
Ground Rent.....	97,545 08
Transfer Fees.....	7,915 15
Fire Protection.....	196,888 44
	<hr/>
	\$2,385,431 44

CULLERS' EXAMINATION.

Examinations for Cullers' Licenses were held in August, at Callander, Thessalon and Kenora, when 26 candidates succeeded in passing, each being thereafter entitled to act as culler under the Act. A list of the successful candidates may be seen in Appendix No. 9, page 35.

A large percentage of candidates were rejected, due in some measure to the candidates' inability to pass the practical test in the scaling of logs where deductions due to defects are necessary. Numbers coming from pulpwood regions with but little knowledge of and no experience in pine, though skilled in measuring pulpwood, fail in the pine examination.

As the Department has found difficulty at times in getting qualified scalers for pulpwood without reducing the pine staff, provision will be made by an amendment to the Ontario Cullers' Act to enable a candidate to secure a pulpwood license.

CROWN SURVEYS.

Surveys of Crown lands in the northern part of the Province consisting of base and meridian lines, township boundaries, lake and river traverse, have been carried on in compliance with the several instructions issued.

Town plot subdivisions of land patented since 1910 have been approved pursuant to R.S.O. 1910, chapter 34, as follows:

Kirkland Lake Addition.—Part of mining claim T.C. 711, Township of Teck, District of Timiskaming (Wright-Hargreaves subdivision).

Swastika Addition.—Part mining claim L.4485, 4486 and 8869, Township of Teck, District of Timiskaming (Simpson subdivision).

Timmins Addition.—Part of south half lot 12, concession 3, Tisdale, District of Cochrane (Bartleman subdivision).

Timmins Addition.—Part of north part lot 2, concession 2, Mountjoy, District of Cochrane (Wilson subdivision).

MUNICIPAL SURVEYS.

Pursuant to sections 15, 16 and 17 of the Surveys Act, petitions for the resurvey of lines laid out under competent authority have been received from the Corporations of the Municipalities of:

Township of Lancaster.
Township of Harvey.
City of Brantford.
Township of Sunnidale.
City of Toronto.

Surveys performed and confirmed were:

Part of the 5th concession of Township of Williamsburg.
Part of the town line between the Townships of Niagara and Grantham.
Part of road allowance between lots 31 and 32, 1st concession, Township of Lancaster.

Detailed reports of the several surveys will be found in appendices 20 to 34, inclusive.

PROVINCIAL PARKS.

Ontario abounds in natural recreation grounds and no better evidence of its great asset in this regard is found than in those areas specifically set apart and classed as parks.

Algonquin Park, in the older part of the province, is the rendezvous of tourists both summer and winter from all parts of the continent. Its attractive features are loudly praised by all who experience its delights, and the tourist traffic resulting therefrom, with the attending circulation of money, is in itself a very important factor in the business of the country. Of still greater importance is the park from the viewpoint of fur industry and game-hunting. The large area, protected as it is by some forty government rangers throughout the entire year, has proved a veritable breeding ground for the red deer, whose supply in contiguous grounds might have long since disappeared had it not been for this haven of protection. A large restricted field like Algonquin Park, so admirably adapted for the propagation of muskrat, beaver, mink, marten, etc., assures adjoining territory of a more certain trapping ground, and as long as poachers can be successfully kept outside of the park limits, natural reproduction will result and adjacent trapping grounds will be fed.

Rondeau Park, in Kent County, picturesquely nestles itself in a peninsula of Kent county, extending into Rondeau Bay, and, for its size, some seven thousand acres, is credited with having more red deer to a square mile than any like area in the province. Its wide stretch of water beaches on both sides, with excellent bathing and boating facilities, its dreamy bowers of woodland and magnificent mixed forest, excellent tourist sites and its general exclusiveness, all tend to captivate the visitor who becomes a summer resident by securing a lease from the Crown.

Quetico Park, containing over one million acres, is situated in Rainy River, on the international boundary, and is the home of the finest quality of a red and white pine stand. Timber operations are being conducted on a basis of a brush-burning experiment in the hope of assuring a regrowth under favourable conditions. Hunting and trapping is forbidden in the park, and the care and protection thus afforded the animals conduce towards the rehabilitation of the surrounding hunting and trapping grounds.

In the display at the Canadian National Exhibition held last year, the Department transplanted a small corner of park life from Northern Ontario to Toronto, where thousands viewed it with pleasure and profit.

COLONIZATION ROADS.

On this service \$827,855.98 was spent, or \$156,671.50 beyond that of the previous year. Commitments respecting direct grants along with by-law requests made early in the year had to be met. The construction and maintenance expenditure for Colonization Roads is a direct benefit to those portions of the country receiving no benefit from the Provincial Highway system. For the details of road and bridge construction and the expenditure under this head see Appendix No. 38.

NORTHERN DEVELOPMENT BRANCH.

Approximately three and one-third million dollars was spent under this Branch during the past year, the details of which, with respect to the construction and maintenance of roads and bridges and the advancement of settlement and colonization, will be found on pages 125 to 158 inclusive, while the details of loans issued to settlers are on pages 159 and 160.

FORESTRY BRANCH.

FOREST FIRE PROTECTION.

Last season developed one of the most serious forest fire losses since 1917.

This was owing to the very dry condition prevailing throughout Northern Ontario in the autumn of 1922, so that the spring of 1923 opened with practically no water in the swamps. In some of the outlying regions no rain occurred to influence the situation until July. This dry period entailed the placing of a large number of men on the staff at an early date, and owing to the serious weather conditions in late September the staff was kept on much later than usual.

Weather conditions accounted for a large increase in the expenditure on ordinary ranging. It also accounted for over \$100,000 additional cost in extra fire-fighting.

Of 1,343 fires occurring during the season, 670 did not get beyond ten acres in size, while 932 did not get beyond 100 acres in size. The total acreage burned over of all classes was slightly over 2,000,000 acres, of which 593,000 was timber land.

Improvement Work: During the last season the outstanding lines of improvement work carried out was the erection of six permanent steel lookout towers, and 23 wooden towers, making in all 117 towers erected to date in Northern Ontario,

Telephone lines were built to connect up lookout points. In all some 300 miles was constructed during the last season. This gives us 636 miles of telephone line now completed in Northern Ontario in connection with forest fire protection.

Equipment: In addition to the ordinary equipment purchased during the past season, the Department invested in 54 portable gas engines and pumping units with 2,000 feet of hose for each. These pumping units are found to be indispensable in connection with handling the forest fire situation. In many districts this past season they saved the situation.

Of our increased expenditure about \$60,000 was expended on these fire fighting units. We now have 88 units in use. Part of the increased expenditure

required this season was in the replacement of blankets and tents used to supply the fire sufferers in the Haileybury district during the previous autumn.

Forest Survey: Continuing the plan of a general forest survey of the province, the Forestry Branch during the past season conducted forest survey work over two areas, comprising 9,200 square miles.

The preliminary work of making an aerial sketch map of the eastern portion of the Nipigon watershed was completed during the past season. This entailed the covering of an area of about 4,800 square miles, and required 104 hours' flying.

An additional area, comprising the northern portion of the Mississagi Forest Reserve, was completed during the past season, covering an area of 4,400 square miles with an aerial survey combined with detailed ground party work. (See Appendix No. 42.)

REFORESTATION.

Provincial Forest Stations: The development at the Provincial Forest Stations has gone on during the past season in a normal way with a few improvements. At the Norfolk Station a seed-extracting plant was established. At Midhurst Station, Simcoe County, main buildings were erected, and ground broken for a nursery site. Preparations were made for a water system and it is expected that this coming summer the nursery organization will be well under way.

Nursery Stock: The following is a summary of the nursery stock, including one-year-old seedlings and transplants, growing at the various forest stations:

Norfolk County (St. Williams).....	16,411,230
Durham County (Orono).....	3,454,600
Simcoe County (Midhurst).....	2,093,000
Hendrie.....	1,511,000
Sand Banks.....	1,449,000
Kemptville.....	300,000

Total.....	25,218,830
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Plantations: The distribution of planting material for various purposes was continued during the past season and the grand total of plants put out in various forms of planting amounted to 1,911,068.

Seed Collecting: The past autumn was a splendid year for the collection of red pine cones. It was usually difficult to secure seed of this tree in large quantities, but during the past autumn a large amount of cones was collected, so that we will be guaranteed red pine seed for the next two or three years.

JAS. LYONS,
Minister.

Department of Lands and Forests,
Toronto, October 31st, 1923.

APPENDICES

Appendix No. 1.

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1923.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Solicitors Branch.	Hon. James Lyons	Minister	1923, July 16	\$6,000 00	Transferred from Files Branch, October 8, 1923.
	Hon. B. Bowman	Minister	1919, Nov. 14	6,000 00	
	W. C. Cain	Deputy Minister	1903, Mar. 1	5,100 00	
	F. J. Niven	Minister's Secretary and Secretary to Department	1897, May 27	3,000 00	
	A. Ferguson	Assistant to Deputy Minister	1915, Dec. 15	2,700 00	
	M. E. Bliss	Senior Clerk Stenographer	1909, Aug. 16	1,300 00	
	E. Harrison	"	1920, May 14	1,100 00	
	R. P. Ferguson	"	1918, April 2	1,200 00	
	A. J. Allan	Clerk Stenographer	1921, May 2	975 00	
	B. Lankin	Junior Clerk	1921, Jan. 14	775 00	
Solicitors Branch.	F. E. Titus	Solicitor to Department	1920, Mar. 2	3,500 00	Resigned Dec. 31, 1922.
	B. Chambers	Clerk Stenographer	1917, April 24	900 00	
	S. Draper	Chief Clerk	1900, May 1	2,850 00	
	W. R. Ledger	Principal Clerk	1894, Feb. 15	2,300 00	
	C. E. Burns	"	1897, July 29	2,300 00	
	W. S. Sutherland	Senior Clerk	1900, Mar. 18	1,900 00	
	J. B. Proctor	"	1897, Jan. 15	1,900 00	
	J. E. Drinkwater	"	1915, Oct. 19	1,800 00	
	A. E. Roe	"	1906, Oct. 16	1,800 00	
	F. A. Lucas	Clerk	1906, Dec. 18	1,700 00	
Lands Branch.	S. A. Platt	"	1905, June 12	1,700 00	Transferred from Surveys Branch, Nov. 1, 1922.
	S. Mulholland	"	1918, May 6	850 00	
	M. Bengough	Senior Clerk Typist	1896, Oct. 23	1,300 00	
	E. F. O'Neil	"	1902, July 7	1,200 00	
	S. Ross	Senior Clerk Stenographer	1917, July 9	1,200 00	
	E. G. Halliday	"	1907, Feb. 21	1,200 00	
	B. M. Benson	"	1909, May 25	1,200 00	
	E. Hills	"	1912, July 2	1,200 00	
	E. Singleton	Clerk Stenographer	1917, April 16	1,050 00	
	A. E. Robillard	Engrossing Clerk	1894, May 4	1,600 00	
	C. O'Connor	"	1907, Oct. 16	1,200 00	

	L. V. Rorke.....	Director of Surveys.....	1909, May	1	4,400 00
	J. Hutcheon.....	Inspector of Surveys.....	1913, April	1	3,300 00
	H. C. Smith.....	Cartographer.....	1919, Dec.	12	2,400 00
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct.	16	2,400 00
	J. Work.....	Principal Clerk.....	1909, May	18	2,000 00
	H. Treby.....	"	1896, June	25	1,900 00
	B. Rushford.....	"	1910, Jan.	24	1,800 00
	F. E. Blanchet.....	"	1906, May	15	1,800 00
	A. Leaman.....	"	1907, Sept.	12	1,800 00
	E. M. Jarvis.....	Senior Clerk.....	1897, April	25	1,800 00
	W. A. Hewitt.....	"	1921, May	2	1,500 00
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July	21	1,200 00
	E. C. Armer.....	"	1909, Aug.	6	1,100 00
SURVEYS BRANCH....					
	E. J. Zavitz.....	Provincial Forester.....	1912, Nov.	7	4,600 00
	C. R. Mills.....	Forester.....	1921, Mar.	28	3,150 00
	F. S. Newman.....	"	1913, Oct.	1	2,300 00
	J. Houser.....	Head Clerk.....	1905, July	17	2,550 00
	H. D. Gillard.....	Principal Clerk.....	1897, Dec.	6	2,100 00
	W. F. Trivett.....	"	1900, June	25	2,100 00
	N. L. Rogers.....	Senior Account Clerk.....	1911, Aug.	1	1,800 00
	A. H. O'Neill.....	Senior Clerk.....	1906, July	19	1,700 00
	G. W. Harris.....	Clerk.....	1906, Sept.	1	1,500 00
	E. H. Teller.....	Senior Clerk.....	1915, Sept.	27	1,600 00
	S. D. Meeking.....	"	1910, Feb.	8	1,600 00
	E. H. Squire.....	Clerk.....	1916, Jan.	4	1,400 00
	E. F. Quigley.....	Junior Clerk.....	1921, May	4	775 00
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May	1	1,200 00
	J. Bald.....	"	1913, June	12	1,200 00
	J. C. McCort.....	Clerk Stenographer.....	1918, Feb.	28	1,050 00
	J. Ferguson.....	"	1919, Aug.	4	900 00
	M. H. O'Brien.....	"	1922, May	22	975 00
	A. S. McKyes.....	"	1921, May	9	975 00
	D. M. Hastings.....	"	1920, April	28	1,050 00
FORESTRY BRANCH....					
	H. M. Lount.....	Accountant.....	1903, Oct.	1	2,700 00
	C. J. Clarke.....	Senior Clerk.....	1905, Aug.	9	1,900 00
	W. A. Burritt.....	"	1907, Sept.	24	1,700 00
	R. Gordon.....	Clerk.....	1912, July	30	1,500 00
	C. C. Johnson.....	"	1921, May	16	1,300 00
	C. Bowland.....	Senior Clerk Typist.....	1908, July	9	1,200 00
	M. A. Whyte.....	Clerk Typist.....	1921, June	1	975 00
ACCOUNTS BRANCH....					

Appendix No. 1.—Concluded.
Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1923.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Files Branch.	S. K. Burdin.	Head Clerk.	1916, April 6	\$2,500 00	Resigned Dec. 31, 1922.
	C. Dies.	Clerk.	1905, June 14	1,500 00	
	F. Samuels.	"	1903, Dec. 5	1,500 00	
	C. W. St. John.	"	1906, July 9	1,400 00	
	W. B. Baines.	"	1912, April 9	1,500 00	
	J. T. Lee.	"	1917, June 25	1,500 00	
	N. B. Mathewson.	"	1915, May 7	1,400 00	
	H. Brophy.	Senior Clerk Messenger.	1898, Oct. 1	1,300 00	
Colonization Roads Branch.	C. H. Fullerton.	Superintendent.	1915, Oct. 15	4,400 00	
	C. H. Meader.	Road Engineer.	1912, June 14	2,700 00	
	M. P. Doherty.	Principal Clerk.	1898, May 1	2,100 00	
	A. Gamey.	Account Clerk.	1915, July 19	1,300 00	
	W. T. Axford.	Junior Clerk.	1910, July 11	1,000 00	
	J. Moore.	Clerk Stenographer.	1918, Dec. 9	975 00	

H. M. LOUNT,
Accountant.

W C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1923.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
<i>Land Agents.</i>					
Arthurs, E.	Espanola Station.	Part District of Sudbury.	1915, June 1	500 00	
Baker, R. H.	Minden.	Part Victoria.	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard.	Part District of Temiskaming.	1913, Aug. 1	1,200 00	
Both, C.	Denbigh.	Part of Frontenac and Adginton.	1905, Oct. 20	200 00	
Blank, Frank.	Wino.	Part District of Renfrew.	1921, Apr. 1	500 00	
Brown, John.	Markstay.	" Nipissing and Sudbury.	1916, July 3	600 00	
Brown, J. B.	Bracebridge.	Muskoka District.	1905, July 28	.....	For salary see Homestead Inspectors.
Cameron, W.	Stratton Station.	Part District of Rainy River.	1911, May 8	500 00	
Campbell, I. M.	Parry Sound.	" Parry Sound.	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie.	" Algoma.	1920, Nov. 18	300 00	Also Homestead Inspector.
Dempsey, S. J.	Cochrane.	" Cochrane.	1911, Feb. 1	1,100 00	
Dodds, T.	Thessalon.	" Algoma.	1915, May 1	500 00	
Douglas, W. J.	Maynooth.	Part Hastings.	1912, June 1	500 00	
Ellis, H. J.	Powassan.	Part District of Parry Sound.	1909, May 20	500 00	
Freeborn, Dr. J. S.	Magnetawan.	" "	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden.	" Kenora.	1914, Dec. 5	1,000 00	
Hales, W.	Apsley.	Part County of Peterborough.	1911, July 17	250 00	
Hollands, C. J.	Fort Frances.	Part Township of Alberta and District of Rainy River.	1892, Oct. 12	300 00	
Holland, H. E.	Kenora.	Part District of Kenora.	1921, Jan. 1	600 00	Also Mining Recorder.
Lockhart, J.	Penbrooke.	Part Renfrew.	1922, Feb. 16	300 00	Removed from office September 11, 1923.
McFayden, A.	Emo.	Part District of Rainy River.	1905, Sept. 8	600 00	
MacLennan, J. K.	Sudbury.	" Sudbury.	1905, July 3	700 00	
Mills, J. E.	Matheson.	" Cochrane.	1921, Aug. 1	1,200 00	
O'Donnell, J. L.	Hearst.	" "	1921, May 3	800 00	
Parsons, W. J.	North Bay.	" Nipissing.	1908, Apr. 8	1,000 00	
Philion, J. A.	Sturgeon Falls.	" "	1907, Sept. 13	500 00	
Small, R.	Mattawa.	" "	1910, July 1	500 00	
Teasdale, R. A.	Massey.	" Sudbury.	1917, July 1	600 00	
Thaw, D.	Emsdale.	" Parry Sound.	1919, July 2	500 00	
Watt, F.	Penbrooke.	Part Renfrew.	1923, Sept. 11	300 00	
Whybourne, W. E.	Hiltonbeach.	Part St. Joseph Island.	1905, Apr. 7	300 00	Died February 25, 1923.

Appendix No. 2.—Concluded.
List of Agents for the year ending October 31st, 1923.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
Wilson, A. N.	Kinmount.	Part District of Peterborough.	1915, May 6	175 00	
Wilson, S. H.	Port Arthur.	" " Thunder Bay.	1921, Nov. 26	1,200 00	
Woollings, J.	Englehart.	" " Temiskaming.	1908, July 13	800 00	
McArthur, T. A.	North Bay.	Inspector of Crown Lands Offices.	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
<i>Homestead Inspectors.</i>					
Barr, J. C.	Fort Frances.	District of Rainy River.	1906, Dec. 1	1,500 00	
Bastien, J. A.	Chelmsford.	W. part of Sudbury District.	1913, May 12	1,200 00	
Brown, J. B.	Bracebridge.	Muskoka District.	1905, July 28	1,100 00	Also Crown Lands Agent.
Cragg, W. V.	New Liskeard.	S. part of Temiskaming District.	1913, Apr. 1	1,500 00	
Dean, Thos.	Sault Ste. Marie.	Algoma District.	1908, Aug. 3	900 00	Also Crown Lands Agent.
Hughes, T.	Murillo.	Thunder Bay District.	1908, July 29	1,400 00	
Jervis, H. F.	Callander.	District of Parry Sound.	1920, June 10	1,500 00	
Owens, H. B.	Cache Bay.	E. part Sudbury and W. part Algoma Districts.	1918, July 1	1,000 00	
Smith, D.	Cochrane.	N. part Temiskaming District.	1912, Apr. 24	1,800 00	
Van Horn, L. E.	Monteith.	Part Temiskaming and Algoma Districts.	1920, Jan. 27	1,600 00	
Watson, T. P.	Englehart.	Centre part of Temiskaming District.	1905, May 10	1,500 00	
Wigle, R. G.	Dryden.	Kenora District.	1914, June 1	1,500 00	
<i>Timber Agents.</i>					
Christie, W. P.	Parry Sound.	Part Parry Sound and Muskoka Districts.	1903, Dec. 4	1,700 00	
Hawkins, S. J.	Webbwood.	Part Algoma and Sudbury Districts.	1905, Aug. 16	1,900 00	
Huckson, A. H.	Sault Ste. Marie.	Part District of Algoma.	1914, Apr. 1	2,300 00	
Larose, S. C.	Ottawa.	Part Ottawa District.	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard.	Part Temiskaming District.	1907, Jan. 1	2,200 00	
McDougall, J. T.	North Bay.	Nipissing and part Sudbury Districts.	1908, July 1	2,300 00	
Spence, D. J.	Cochrane.	Part Temiskaming and Algoma Districts.	1920, Dec. 1	2,300 00	
Stevenson, A.	Peterborough.	Belleville District.	1905, Oct. 4	1,900 00	
Wood, W. G. A.	South Porcupine.	Porcupine District.	1917, Mar. 1	1,600 00	

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1923.

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
<i>Lands Sold:</i>		\$ c	\$ c
Agricultural and Townsites.....	113,031.97	110,158 36	107,900 26
Clergy Lands.....			134 00
Common School Lands.....			1,418 89
Grammar School Lands.....			196 00
University Lands.....	3,063	1,531 50	1,806 89
<i>Lands Leased:</i>			
Crown.....	37,907.97	5,131 01	87,632 01
Temagami.....	16	162 50	1,138 84
	154,018.94	116,983 37	200,226 89

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

*Appendix No. 4.*Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1923.

Service.	\$	c.	\$	c.	\$	c.		
LAND COLLECTIONS.								
<i>Crown Lands:</i>								
Agricultural.....	84,936	07	107,900	26	111,456	04		
Townsites.....	22,964	19						
Clergy Lands.....	134	00						
Common School Lands.....	1,418	89						
Grammar School Lands.....	196	00						
University Lands.....	1,806	89						
			3,555	78				
<i>Rent:</i>								
Crown Leases.....	82,140	27	88,770	85				
Algonquin Provincial Park.....	2,200	74						
Rondeau Provincial Park.....	3,291	00						
Temagami Leases.....	1,138	84						
WOODS AND FORESTS.								
Bonus.....	931,013	87	2,385,431	44				
Timber Dues.....	1,152,068	90						
Ground Rent.....	97,545	08						
Transfer Fees.....	7,915	15						
Fire Protection.....	196,888	44						
<i>Parks:</i>								
Algonquin Provincial Park.....	6,996	83	9,308	96				
Rondeau Provincial Park.....	1,841	20						
Quetico Provincial Park.....	470	93						
Casual Fees.....	1,320	41	1,858	41				
Cullers' Fees.....	404	00						
Forest Reserves Guides' Fees.....	134	00						
REFUNDS.								
Forest Ranging.....	89,450	93	96,595	44				
Clearing Townsites and Removing Fire Hazards.....	1,826	74						
Fire Ranging.....	1,312	95						
Surveys.....	1,598	43						
Litigation of Constitutional and other Questions.....	1,807	31						
Agents' Salaries and Disbursements.....	350	40						
Forest Reserves.....	182	50						
Display at Toronto Exhibition.....	32	60						
Reforestation.....	25	00						
Contingencies,.....	8	58						
			2,693,421	14				

H. M. LOUNT,
Accountant.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1923, which are considered as Special Funds.

Service.	\$ c.	\$ c.
<i>Clergy Lands.</i>		
Principal.....	99 95	
Interest.....	34 05	134 00
<i>Common School Lands.</i>		
Principal.....	757 20	
Interest.....	661 69	1,418 89
<i>Grammar School Lands.</i>		
Principal.....	122 50	
Interest.....	73 50	196 00
<i>University Lands.</i>		
Principal.....	1,211 38	
Interest.....	595 51	1,806 89
		\$3,555 78

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1923.

Service.	\$ c.	\$ c.	\$ c.
AGENTS' SALARIES AND DISBURSEMENTS.			
<i>Land, \$23,437.99</i>			
Arthurs, E.....		500 00	
Baker, R. H.....	350 00		
Disbursements.....	2 85	352 85	
Blank, F.....	500 00		
Disbursements.....	146 25	646 25	
Both, C.....		200 00	
Bolger, J. W.....	1,200 00		
Disbursements.....	275 00	1,475 00	
Brown, John.....	600 00		
Disbursements.....	22 00	622 00	
Cameron, W.....	500 00		
Disbursements.....	40 00	540 00	
Campbell, Miss I. M.....	500 00		
Disbursements.....	137 00	637 00	
Dean, T.....		300 00	
Dempsey, S. J.....	1,100 00		
Disbursements.....	149 50	1,249 50	
Dodds, T.....	500 00		
Disbursements.....	41 30	541 30	
Douglas, W. J.....	500 00		
Disbursements.....	22 00	522 00	
Ellis, H. J.....		500 00	
Freeborn, J. S.....	500 00		
Disbursements.....	14 60	514 60	
Gibson, J. E.....	1,000 00		
Disbursements.....	194 00	1,194 00	
Hales, W.....	250 00		
Disbursements.....	18 25	268 25	
Holland, H. E.....	600 00		
Disbursements.....	503 10	1,103 10	
Hollands, C. J.....	300 00		
Disbursements.....	120 00	420 00	
Lockhart, J.....	259 04		
Watt, F.....	41 44		
Disbursements.....	11 00	311 48	
<i>Carried forward.....</i>		11,897 33	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		11,897 33	
<i>AGENTS' SALARIES AND DISBURSEMENTS—Continued.</i>			
<i>Land—Concluded.</i>			
McFayden, A.....	600 00		
Disbursements.....	40 30		
		640 30	
MacLennan, J. K.....	700 00		
Disbursements.....	78 95		
		778 95	
Mills, J. E.....	1,200 00		
Disbursements.....	253 39		
		1,453 39	
O'Donnell, J. L.....	800 00		
Disbursements.....	239 85		
		1,039 85	
Parsons, W. J.....	1,000 00		
Disbursements.....	212 00		
		1,212 00	
Philion, J. A.....	166 68		
Marchildon, J. P.....	257 60		
Disbursements.....	126 93		
		551 21	
Small, R.....	500 00		
Disbursements.....	17 70		
		517 70	
Teasdale, R. A.....	600 00		
Disbursements.....	141 91		
		741 91	
Thaw, D.....	500 00		
Disbursements.....	16 40		
		516 40	
Whybourne, W. E.....	300 00		
Disbursements.....	18 30		
		318 30	
Wilson, A. N.....	175 00		
Disbursements.....	13 25		
		188 25	
Wilson, S. H.....	1,200 00		
Kurki, Miss A.....	700 00		
Disbursements.....	746 40		
		2,646 40	
Woollings, J.....	800 00		
Disbursements.....	136 00		
		936 00	
<i>Homestead Inspectors, \$27,032.24.</i>			
Barr, J. C.....	1,500 00		
Disbursements.....	766 12		
		2,266 12	
Bastien, J. A.....	1,200 00		
Disbursements.....	1,080 53		
		2,280 53	
Brown, J. B.....	1,100 00		
Disbursements.....	419 50		
		1,519 50	
Cragg, W. V.....	1,500 00		
Disbursements.....	563 50		
		2,063 50	
<i>Carried forward</i>		31,567 64	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		31,567 64	
<i>AGENTS' SALARIES AND DISBURSEMENTS—Continued.</i>			
<i>Homestead Inspectors.—Concluded.</i>			
Dean, T.....	900 00		
Disbursements.....	325 78		
		1,225 78	
Hughes, T.....	1,400 00		
Disbursements.....	672 75		
		2,072 75	
Jervis, H. F.....	1,500 00		
Disbursements.....	583 10		
		2,083 10	
Owens, H. B.....	1,000 00		
Disbursements.....	1,663 55		
		2,663 55	
Smith, D.....	1,800 00		
VanHorn, L. E.....	1,600 00		
Corke, A.....	225 00		
McArthur, A. J.....	284 00		
Thompson, J.....	112 00		
Disbursements.....	2,233 68		
		6,254 68	
Watson, T. P.....	1,500 00		
Disbursements.....	963 70		
		2,463 70	
Wigle, R. G.....	1,500 00		
Disbursements.....	639 03		
		2,139 03	
<i>Timber, \$42,873.05.</i>			
Alexander, J. A.....	2,504 00		
McLeod, Miss R.....	902 88		
Disbursements.....	923 23		
		4,330 11	
Christie, W. P.....	1,700 00		
Disbursements.....	352 03		
		2,052 03	
Hawkins, S. J.....		1,900 00	
Huckson, A. H.....	2,300 00		
Bell, Miss B.....	602 27		
McDougall, Miss M.....	120 00		
Disbursements.....	1,018 55		
		4,040 82	
McCaw, J. G.....	2,504 00		
MacCrimdle, Miss I.....	963 04		
Disbursements.....	610 16		
		4,077 20	
McDougall, J. T.....	2,300 00		
Disbursements.....	738 11		
		3,038 11	
MacDonald, S. C.....	2,200 00		
Disbursements.....	392 32		
		2,592 32	
Milway, J. H.....	2,504 00		
Godfrey, Miss S.....	960 00		
Disbursements.....	1,338 68		
		4,802 68	
<i>Carried forward</i>		77,303 50	

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>		77,303 50	
AGENTS' SALARIES AND DISBURSEMENTS—Continued.			
<i>Timber—Concluded.</i>			
Smith, J. D. C.....	2,504 00		
Brunsel, Miss E. L.....	902 92		
Disbursements.....	1,129 07	4,535 99	
Spence, D. J.....	2,300 00		
Disbursements.....	1,084 43	3,384 43	
Stevenson, A.....	1,900 00		
Disbursements.....	505 67	2,405 7	
Whelan, P. J.....	2,504 00		
Disbursements.....	464 02	2,968 02	
Wood, W. G. A.....	1,600 00		
Disbursements.....	1,145 67	2,745 67	
<i>Miscellaneous, \$2,620.35.</i>			
Green, H. P., Caretaker of Islands in Charleston Lake.	50 00		
Disbursements.....	1 73	51 73	
Jamieson, W. H., Caretaker of Islands in Dog and Laboria Lakes.....		50 00	
Stuart, J. G., Supervisor of Wellington Beach.....		50 00	
McArthur, T. A., Inspector of Agencies.....	900 00		
Disbursements.....	759 68	1,659 68	
Hartt, J. I., Inspector of Crown Timber Agencies, etc.	540 99		
Disbursements.....	267 95	808 94	
			95,963 63
OTTAWA AGENCY.			
Larose, S. C., Acting Agent.....		1,800 00	
Rent.....	700 00		
Disbursements.....	114 27	814 27	
			2,614 27
CULLERS' ACT.			
McCaw, J. G., disbursements.....		24 30	
McDonald, S. C., disbursements.....		41 50	
McNabb, A. D., services.....	8 00		
disbursements.....	20 00	28 00	
Whelan, P. J., disbursements.....		22 30	
			116 10
<i>Carried forward</i>			98,694 00

Appendix No. 6—Continued.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>			98,694 00
FIRE RANGING.....			1,067,202 22
FOREST RANGING.....			487,046 91
FOREST RESERVES.....			9,470 28
REFORESTATION.....			214,547 12
ALGONQUIN PROVINCIAL PARK.....			46,747 67
QUETICO PROVINCIAL PARK.....			10,870 55
RONDEAU PROVINCIAL PARK.....			14,377 72
SURVEYS.....			168,277 80
COLONIZATION ROADS.....			827,855 98
BOARD OF SURVEYORS.....			200 00
GRANT TO CANADIAN FORESTRY ASSOCIATION.....			3,000 00
INSURANCE.....			1,785 57
COMMISSIONS RE SUNDRY INVESTIGATIONS.....			28,518 90
LITIGATION OF CONSTITUTIONAL AND OTHER QUESTIONS.....			18,047 93
ALLOWANCE SCHOOL SECTION, SOUTH WALSINGHAM.....			300 00
WORKMEN'S COMPENSATION.....			3,972 09
UNFORESEEN AND UNPROVIDED.....			1,216 30
CREATION AND EXTENSION OF PARKS.....			1,128 61
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....			99,896 73
GRANT TO EMPIRE FORESTRY CONFERENCE.....			7,000 00
SPECIAL WARRANTS.			
Clearing Lands at Kapuskasing.....		7,401 82	
Legal Fees and Expenses.....		3,600 00	
Burlington Beach Commission.....		7,000 00	
Compensation to Chippawa and Mississauga Indian Tribes.....		400,000 00	
Kapuskasing Water and Sewerage System.....		6,385 20	
			424,387 02
MISCELLANEOUS.			
Law Society of Upper Canada, fees.....			20 00
REFUNDS—Miscellaneous.....			18,986 22
DISPLAY AT TORONTO EXHIBITION.....			1,179 03
MOVING EXPENSES OF OFFICIALS.....			379 25
PURCHASE AND MAINTENANCE OF AUTOMOBILES.....			2,904 51
VETERANS' COMMUTATION.....			1,000 00
<i>Carried forward</i>			3,559,012 41

Appendix No. 6—Concluded.

Service.	\$ c.	\$ c.	\$ c.
<i>Brought forward</i>			3,559,012 41
CONTINGENCIES, ETC.			
<i>Departmental.</i>			
Printing and Binding.....	4,231 25		
Stationery.....	16,122 37	20,353 62	
Express and Cartage.....	661 87		
Postage and Excise Stamps.....	3,203 70	3,865 57	
Telegraphing.....	1,728 33		
Car Fare.....	24 00		
Livery.....	125 75	1,878 08	
Subscriptions.....	227 97		
Advertising.....	10,306 03	10,534 00	
Typewriters, repairs and inspections.....	1,097 01		
Annual Membership Fees.....	29 00	1,126 01	
Bowman, Hon. Beniah, travelling expenses.....	662 86		
Lyons, Hon. J. " ".....	600 00		
Keefer, F. H. " ".....	669 63		
Cain, W. C., " ".....	190 21		
Hutcheon, J., " ".....	516 54		
Niven, F. J., " ".....	215 00		
Rorke, L. V., " ".....	697 33		
Titus, F. E., " ".....	122 31		
Work, J., " ".....	48 55	3,722 43	
Extra Clerks.....	10,557 93		
Maps.....	6,055 06		
Sundries.....	259 45	16,872 44	
			58,352 15
EXTRA SERVICES:			
O'Neil, A. H.....		218 13	
Trivett, W. F.....		244 50	
			462 63
COLONIZATION ROADS CONTINGENCIES.			
Printing and Binding.....	411 43		
Stationery.....	651 83	1,063 26	
Postage.....	215 92		
Express.....	21 28	237 20	
Telegraphing.....	80 47		
Subscriptions.....	16 50		
Typewriter, repairs and inspections.....	109 00	205 97	
Fullerton, C. H., travelling expenses.....	184 54		
Meader, C. H., " ".....	521 23	705 77	
Extra Clerks.....	1,082 64		
Sundries.....	111 92	1,194 56	
			3,406 76
			3,621,233 95

For particulars of expenditure of the Northern Development Branch, see Appendix No. .

H. M. LOUNT,
Accountant.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix

FORESTRY

Statement of Timber and Amounts accrued from Timber Dues, Ground Rent,

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				
		Pine.		Other.		
	Square Miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.
Western Timber District.....	12,715½	8,641,461	307,105,616	1,451,782	43,952,300	86,714
Belleville Timber District.....	702¼	64,100	1,377,806	59,065	1,425,251	725
Ottawa Timber District.....	4,351	755,481	37,195,213	330,693	9,736,857	1,070
	17,768¾	9,461,042	345,678,635	1,841,540	55,114,408	88,509

General Statement

Agencies.	Shingle Bolts.	Cedar Lineal feet.	Cedar Posts	Telegraph Poles.	Pulpwood.	Railway Ties.		
	Cords.		Pieces.	Pieces.	Cords.	Pieces.	Transfer Fees.	Interest.
Western Timber District.....	2,077	9,627	75,765	5,559	547,678	1,653,619	\$ 5,190 c 15	\$ 31,309 c 23
Belleville Timber District.....			11,830	.....	64	5,598	50 00	115 14
Ottawa Timber District.....			3,242	1,130	25,619	175	2,675 00	1,073 88
	2,077	9,627	90,837	6,689	573,361	1,659,392	7,915 15	32,498 25

JOHN H. HOUSER,
Chief Clerk in Charge.

No. 7.

BRANCH.

Fire Protection and Bonus, etc., during the year ending 31st October, 1923.

DESCRIPTION OF TIMBER.

Boom and Dimension.			Piling.				Cordwood.		Tan Bark.
Pine.	Other.						Hard.	Soft.	
Feet B.M.	Pieces.	Feet B.M.	Pieces.	Lineal Feet.	Pieces.	Feet B.M.	Cords.	Cords.	Cords.
10,178,181	20,140	1,728,378	1,033	103,056	5,504	525,743	7,511	30,529	2,189
113,136	445	70,015	.....	.....	.....	.....	100	.....	.....
247,553	5,336	660,372	.....	.....	.....	.....	.....	1,418	.....
10,538,870	25,921	2,458,765	1,033	103,056	5,504	525,743	7,611	31,947	2,189

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber Dues.	Bonus.	Deposit Timber Sales.	Ground Rent.	Fire Protection.	Total.
\$ c	\$ c	\$ c	\$ c	\$ c	\$ c	\$ c
33,084 41	1,532,332 17	1,532,770 10	139,754 86	72,676 71	165,616 91	3,512,734 54
2,609 95	6,238 41	.....	.....	3,180 00	3,957 80	16,151 30
244 22	127,067 56	.....	.....	21,150 00	27,313 73	179,524 39
35,938 58	1,665,638 14	1,532,770 10	139,754 86	97,006 71	196,888 44	3,708,410 23

W. C. CAIN,
Deputy Minister.

Appendix No. 8.

FORESTRY BRANCH.

Statement of Revenue collected during the year ending October 31st, 1923.

Amount of Western Collections at Department.....	\$2,272,908 95
“ Belleville “ “ “	16,614 27
“ Ottawa “ “ “	95,908 22
	<u>\$2,385,431 44</u>

FORESTRY BRANCH.

Timber Dues.....	\$1,152,068 90
Bonus.....	931,013 87
Ground Rent.....	97,545 08
Fire Protection.....	196,888 44
Transfer Fees.....	7,915 15
	<u>\$2,385,431 44</u>

FORESTRY BRANCH REVENUE.

October 31st, 1923.

WESTERN DISTRICT—

Timber dues.....	\$1,067,204 63
Bonus.....	791,156 46
Ground rent.....	72,676 71
Interest, timber dues.....	30,869 68
Interest, ground rent.....	439 55
Transfer fees.....	5,190 15
Timber sale deposit.....	139,754 86
Fire protection.....	165,616 91
	<u>\$2,272,908 95</u>

OTTAWA DISTRICT—

Timber dues.....	\$43,695 61
Ground rent.....	21,150 00
Interest, timber dues.....	1,022 88
Interest, ground rent.....	51 00
Fire protection.....	27,313 73
Transfer fees.....	2,675 00
	<u>95,908 22</u>

BELLEVILLE DISTRICT—

Timber dues.....	\$9,208 78
Bonus.....	102 55
Ground rent.....	3,180 00
Interest, timber dues.....	67 32
Interest, ground rent.....	47 82
Fire protection.....	3,957 80
Transfer fees.....	50 00
	<u>16,614 27</u>
	<u>\$2,385,431 44</u>

JOHN H. HOUSER,
Chief Clerk in Charge.W. C. CAIN,
Deputy Minister.

Appendix No. 9.

CULLERS' EXAMINATION.

Three examinations were held during the year, one at Callander, one at Thessalon and one at Kenora, on the 29th day of August, 1923.

Twenty-six candidates were successful in passing the examination, and were duly granted licenses authorizing them to act as cullers.

List of parties who passed the Cullers' Examination on the 29th day of August, 1923, and were duly granted licenses on the 10th day of September, 1923.

Name	Address	Place of Examination
Bissonnette, J. A.	Fort Frances.	Kenora.
Colley, John W.	Sturgeon Falls.	Callander.
Cowan, S.	Port Arthur.	Kenora.
Carnihan, H. M.	Fort Frances.	Kenora.
Cameron, N. S.	Stratton.	Kenora.
Graydon, J. C.	Kenora.	Kenora.
Gillies, J. P.	Blind River.	Thessalon.
Horn, J. M.	Kenora.	Kenora.
Hooper, W. A.	Kenora.	Kenora.
Hook, D. E.	Kenora.	Kenora.
Johns, C. H.	Sudbury.	Callander.
Kennedy, Thos. J.	Lakefield.	Callander.
Kennedy, James Stanley.	Thessalon.	Thessalon.
Knight, George E.	Pakesley. (License issued Jan. 4, 1924.)	Callander.
L'Abbe, Philip.	Port Arthur.	Kenora.
Lacasse, P. D.	Port Arthur.	Kenora.
McMillan, F. J.	Blind River.	Thessalon.
McGillivray, James A.	Blind River.	Thessalon.
Nault, Thos.	Sault Ste. Marie.	Thessalon.
Ruxton, James.	Pakesley. (License issued Nov. 29, 1923.)	Callander.
Sutherland, J. W.	North Bay.	Callander.
Spence, S. D.	Espanola.	Callander.
Shaw, Allan.	Keewatin.	Kenora.
Shrumm, W. F.	Stratton.	Kenora.
Snider, Roy.	37 Emmerson Ave., Toronto.	Thessalon.
Waller, Thos. F.	North Bay.	Callander.

P.S.—Conway, Harold, Barry's Bay, examined at North Bay; Jones, W. J., 107 Marchmount Road, examined at North Bay: who presented themselves for examination in 1921, were granted Culler's License after obtaining further experience of one year, the former on the 16th August, 1923, and the latter on the 18th April, 1923.

JOHN H. HOUSER,
Chief Clerk.

W. C. CAIN,
Deputy Minister

Appendix No. 10.

PATENTS OFFICE (Lands Branch).

Statement of Patents, etc., issued from 1st November, 1922, to 31st October, 1923.

Public Lands (late Crown).....	577
“ “ (late School).....	12
“ “ (late Clergy Reserves).....	1
“ “ (University).....	20
Free Grant Lands (Act of 1913).....	301
“ “ (Act of 1901 Veterans).....	224
Mining Lands (Patents).....	337
Mining Leases.....	192
Crown Leases.....	152
Licenses of Occupation.....	98
Temagami Island Leases.....	11
Sand and Gravel Licenses.....	23
Pine Patents.....	7
Quarry Claims.....	6
Water Power Leases.....	11
Releases of Pine.....	2
Orders-in-Council (Vesting).....	2
Total.....	1,976

CHAS. E. BURNS
Clerk of Patents.SELBY DRAPER,
Chief Clerk.W. C. CAIN,
Deputy Minister of Lands and Forests.*Appendix No. 11.*

Statement of the work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1923.

Veteran patents issued.....	224
Locations under military certificates.....	273
Certificates applied in payment of lands.....	4
Certificates surrendered for commutation money.....	20

J. B. PROCTOR,
Clerk in Charge.SELBY DRAPER,
Chief Clerk.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 12.

RECORDS BRANCH, 1922-1923.

Communications received:

From Crown Lands Agents.....	8,335
“ Crown Timber Agents.....	4,399
“ Mining Recorders.....	4,284
“ Homestead Inspectors.....	3,242
“ Superintendent Algonquin Park.....	660
“ Superintendent Quetico Park.....	115
“ Superintendent Rondeau Park.....	346
Orders-in-Council.....	209
Telegrams.....	134
Northern Development Branch (figures supplied by them).....	11,386
Loan Commissioner (figures supplied by them).....	7,083
Forestry Branch (figures supplied by them).....	25,725
Colonization Roads (figures supplied by them).....	4,968
All other sources.....	29,325

Total incoming (Minister's Office not included)..... 100,211

Communications sent out:

To Crown Lands Agents, Crown Timber Agents, Inspectors and Park Superintendents.....	24,480
“ General Public.....	21,108
Circular Letters <i>re</i> Timber Sales, etc.....	8,923
Maps and Blue Prints by Surveys Branch.....	4,800
Northern Development Branch (figures supplied by them).....	13,449
“ “ (Seed-grain) (figures supplied by them).....	1,620
Loan Commissioner (figures supplied by them).....	12,628
Forestry Branch Letters (figures supplied by them).....	10,773
“ “ (Parcels and calendars) (figures supplied by them).....	1,324
Colonization Roads (figures supplied by them).....	4,400

Total outgoing (Minister's Office not included)..... 103,505

Postage:

Postage for the year, Records Branch.....	2,187 11
“ “ Loan Commissioner.....	400 00
“ “ Forestry Branch.....	601 14
“ “ Colonization Roads.....	190 12
“ “ Northern Dev. Branch.....	906 10

Files:

New Files issued, General.....	5,855
“ “ Accounts chargeable.....	629
“ “ Accounts free.....	187

S. K. BURDIN,
Chief Clerk, Records Branch.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 13.

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Free Grant Townships during the year ending 31st October, 1923.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Baxter.....	Muskoka.....	J. B. Brown,	2	148	.....	.....	12	1,288	5	521
Brunel.....	"	Bracebridge..	1	100	.....	.....	1	100	5	500
Cardwell.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Chaffey.....	"	"	1	101	1	1	2	202	1	100
Draper.....	"	"	2	200	.....	.....	1	102	.....	.....
Franklin.....	"	"	6	571	.....	.....	4	561	3	573
Freeman.....	"	"	.....	.....	.....	.....	1	100	1	152
Macaulay.....	"	"	.....	.....	.....	.....	.....	.....	4	412
Medora.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Monck.....	"	"	1	100	.....	.....	1	100	.....	.....
Morrison.....	"	"	.....	.....	.....	.....	.....	.....	2	370½
Muskoka.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
McLean.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Oakley.....	"	"	1	51	.....	.....	1	51	1	187
Ridout.....	"	"	4	396	.....	.....	3	396	1	100
Ryde.....	"	"	3	235	.....	.....	1	100	2	160
Sherbourne.....	Haliburton...	"	.....	.....	.....	.....	.....	.....	2	143
Sinclair.....	Muskoka.....	"	2	276	1	1	3	376	2	200
Stephenson.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Stisted.....	"	"	.....	.....	.....	.....	.....	.....	1	87
Watt.....	"	"	1	100	.....	.....	1	100	.....	.....
Wood.....	"	"	.....	.....	.....	.....	.....	.....	2	165½
Blair.....	Parry Sound..	Miss I. M. Camp- bell, Parry Sound	.....	.....	2	5	.....	.....	2	184
Burpee.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Carling.....	"	"	3	297	.....	.....	2	398	1	5
Christie.....	"	"	7	609	.....	.....	4	626	2	220
Conger.....	"	"	.....	.....	.....	.....	1	74	3	448
Cowper.....	"	"	.....	.....	1	5	.....	.....	.....	.....
Foley.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Ferguson.....	"	"	2	200	.....	.....	.....	.....	.....	.....
Hagerman.....	"	"	1	97	.....	.....	.....	.....	.....	.....
Harrison.....	"	"	.....	.....	.....	.....	.....	.....	1	222½
Henvey.....	"	"	.....	.....	.....	.....	.....	.....	3	329
Humphrey.....	"	"	4	492	2	89½	.....	.....	1	99
McConkey.....	"	"	2	185	1	100	1	85	.....	.....
McDougall.....	"	"	1	100	.....	.....	1	100	4	558
McKellar.....	"	"	1	100	.....	.....	.....	.....	.....	.....
McKenzie.....	"	"	2	157	1	5	1	155	3	398
Monteith.....	"	"	2	288	.....	.....	2	378	2	285
Shawanaga.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Wilson.....	"	"	5	865	5	205	1	200	2	298
Chapman.....	Parry Sound..	Dr. J. S. Freeborn, Maganetawan	3	297	.....	.....	1	97	3	505
Croft.....	"	"	2	350	.....	.....	2	150	1	200
Ferrie.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Gurd.....	"	"	1	109	.....	.....	.....	.....	1	200
Lount.....	"	"	3	339	.....	.....	1	197	1	100
Machar.....	"	"	2	200	.....	.....	1	200	1	200
Mills.....	"	"	5	594	1	51	1	200	4	466
Pringle.....	"	"	4	542	1	33	3	392	.....	.....
Ryerson.....	"	"	2	245	.....	.....	2	280	2	232
Spence.....	"	"	5	808	1	½	3	350	.....	.....
Strong.....	"	"	3	484	.....	.....	.....	.....	1	45½

Appendix No. 13—Continued.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Armour.....	Parry Sound..	David Thaw,	8	985	...	...	6	795	8	1,022
Bethune.....	"	Emsdale..	5	577	...	...	3	357	2	355
Joly.....	"	"	4	361	...	...	10	1,454	8	1,077
McMurrich....	"	"	...	...	...	...	...	...	3	447
Perry.....	"	"	...	...	...	...	2	204	...	...
Proudfoot....	"	"	2	200	...	...	2	200	...	...
Hardy.....	Parry Sound..	H. J. Ellis,	2	200	2	6	1	100	4	451
Himsworth....	"	Powassan..	5	611	...	...	2	300	7	1,095
Laurier.....	"	"	1	103	3	129	...	...	2	409
Nipissing.....	"	"	1	100	...	...	2	200	4	298
Patterson....	"	"	3	258	...	...	1	97	...	...
Bonfield.....	Nipissing.....	W. J. Parsons,	4	400	...	...	4	500	2	300
Boulter.....	"	North Bay..	3	400	...	...	...	...	2	400
Chisholm....	"	"	...	...	...	...	...	...	3	393
Ferris.....	"	"	1	100	1	1½	3	500	2	103
Anson.....	Haliburton...	R. W. Baker,	...	...	...	...	...	...	1	182
Glamorgan....	"	Minden..	...	...	...	...	...	...	...	...
Hindon.....	"	"	...	...	...	...	...	...	1	28
Lutterworth...	"	"	1	28	1	28	...	...	2	314
Minden.....	"	"	...	...	...	...	...	...	3	569
Snowdon.....	"	"	1	25	...	...	...	...	...	...
Stanhope....	"	"	1	74¼	...	...	1	74¼	...	...
Anstruther....	Peterborough.	Wm. Hales, Apsley.	...	...	...	...	...	...	1	103
Burleigh, N.D.	"	"	...	...	...	...	...	...	2	203
" S.D..	"	"	...	...	...	...	...	...	1	2
Chandos.....	"	"	...	...	1	2	...	...	...	...
Methuen.....	"	"	...	...	...	...	...	...	...	...
Cardiff.....	Haliburton...	A. N. Wilson.....	4	687	...	...	2	354	5	587
Cavendish....	Peterborough.	"	...	...	2	10	...	...	2	9
Galway.....	"	"	...	...	...	...	...	...	1	100
Monmouth....	Haliburton...	"	3	394	...	...	3	385	3	497
Bangor.....	Hastings.....	W. J. Douglas,	2	315	2	159	...	...	5	288
Carlow.....	"	Maynooth..	3	300	...	...	2	200	1	222
Cashel.....	"	"	...	...	...	...	...	...	...	...
Dungannon....	"	"	3	163½	...	...	2	163½	4	292
Faraday.....	"	"	4	416	1	100	1	188	4	539
Herschel.....	"	"	2	139½	2	91	1	91	5	494¼
Limerick.....	"	"	...	...	...	...	...	...	...	...
Mayo.....	"	"	3	384	...	...	2	329	1	91
Monteagle....	"	"	4	346½	1	157	1	100	4	566
McClure.....	"	"	1	100	...	...	...	...	...	...
Wicklow.....	"	"	2	175	...	...	...	...	...	...
Wollaston....	"	"	...	...	...	...	...	...	...	...
Algona, S.....	Renfrew.....	Frank Blank,	...	...	...	...	...	...	...	...
Brougham....	"	Wilno..	...	...	...	...	...	...	...	...
Brudenell....	"	"	4	296½	1	50	2	198	6	1,138½
Burns.....	"	"	2	198	...	...	2	198	...	...
Grattan.....	"	"	1	104	...	...	1	104	...	...
Griffith.....	"	"	...	...	...	...	...	...	...	...
Hagarty.....	"	"	3	253	...	...	...	...	4	344
Jones.....	"	"	18	1,358½	2	27	2	432	1	233
Lyell.....	"	"	2	305	...	...	1	200	2	406
Lyndoch.....	"	"	2	150	...	...	1	50	1	315

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Matawatchan..	Renfrew.....	Frank Blank,	1	87					1	150
Radcliffe.....	"	Wilno..	11	1,045	3	95	6	684	1	167
Raglan.....	"	"	5	450			1	200	3	425
Richards.....	"	"	11	1,024	1	22	4	398	1	222
Sebastopol.....	"	"								
Sherwood.....	"	"	9	739	1	50	2	186	2	297
Algona, N.....	Renfrew.....	Finlay Watt,	1	100						
Alice.....	"	Pembroke..	2	194	3	303	1	103	1	50
Buchanan.....	"	"							1	185
Clara.....	"	"			1	39			1	239
Fraser.....	"	"	3	403					2	289
Head.....	"	"								
Maria.....	"	"	1	160			1	160		
McKay.....	"	"								
Petewawa.....	"	"	2	200			1	100		
Rolph.....	"	"								
Wilberforce.....	"	"							4	383½
Wylie Pt.....	"	"	1	75						
Calvin.....	Nipissing....	Robert Small,	4	394			5	553	1	100
Cameron Pt...	"	Mattawa..	7	728	1	93	2	108	1	137
Lauder.....	"	"	4	528	1	5	2	319	1	205
Mattawan.....	"	"	3	234			1	102		
Papineau.....	"	"	4	400			1	100	1	100
Korah.....	Algoma.....	Thos. Dean,								
Park.....	"	Sault Ste. Marie..								
Prince.....	"	"			1	160	5	720	1	160
Aberdeen.....	Algoma.....	Thos. Dodds,	1	166	1	6			3	484
" Addl.	"	Thessalon..								
Galbraith.....	"	"	1	165	1	5			1	165
Lefroy.....	"	"	1	33						
Plummer.....	"	"							1	117
" Addl.	"	"								
St. Joseph Isd..	Algoma.....	W. E. Whybourne.	3	293			2	200		
"	"	"							2	200
Jocelyn.....	"	"								
Baldwin.....	Sudbury.....	Edward Arthurs,	2	282¾			1	162	1	118
Merritt.....	"	Espanola..	6	834½			2	370½	1	68
Blake.....	Thunder Bay.	S. H. Wilson,	9	1,356			3	473		
Conmee.....	"	Port Arthur..	6	785	1	50	3	448½	4	626
Crooks.....	"	"	1	160	1	16			3	471½
Dawson Road..	"	"	5	659	1	93	3	315	6	660
Dorion.....	"	"	1	160	1	2	1	160	2	372½
Gillies.....	"	"	4	529½	3	477	1	157	7	878¾
Gorham.....	"	"	7	949¼	1	84¼	4	574	11	1,561
Lybster.....	"	"	1	160	3	234	2	160	2	327
Marks.....	"	"	5	800			1	160½		
McGregor.....	"	"	12	1,836½			7	1,200	2	324
McIntyre.....	"	"							1	162
O'Connor.....	"	"			1	2			1	162
Oliver.....	"	"	1	160			1	160	1	151½
Paipoonge, N.R.	"	"								
" S.R.	"	"								
Pardee.....	"	"							6	522
Pearson.....	"	"	4	560			3	400	2	323½

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Scoble	Thunder Bay.	S. H. Wilson,	6	870	2	122	4	473	2	321 $\frac{1}{2}$
Stirling	"	Port Arthur..	15	2,137 $\frac{1}{2}$	3	232 $\frac{1}{2}$	9	1,425	4	621 $\frac{3}{4}$
Strange	"	"	3	439	1	2	2	319	2	320 $\frac{1}{2}$
Ware	"	"	10	1,147	1	417 $\frac{1}{4}$	7	941	11	1,180
Atwood	Rainy River..	Wm. Cameron,	7	962 $\frac{1}{2}$	1	1	2	238	6	729
Blue	"	Stratton..	3	480	1	99 $\frac{3}{4}$	6	559 $\frac{3}{4}$	1	162
Curran	"	"	4	412 $\frac{3}{4}$	1	99 $\frac{3}{4}$	6	559 $\frac{3}{4}$	1	162
Dewart	"	"	2	241	3	163	1	80	5	728
Dilke	"	"	12	1,367	8	1,064 $\frac{1}{4}$	2	317 $\frac{1}{2}$	2	317 $\frac{1}{2}$
Morley	"	"	11	1,638	6	874 $\frac{1}{4}$	1	161	1	161
Morson	"	"	6	727	4	85	5	645	2	323
McCrosson	"	"	4	521	3	361	2	240	2	240
Nelles	"	"	5	816 $\frac{1}{2}$	3	474 $\frac{1}{2}$	1	156	1	156
Patullo	"	"	13	1,900	2	169 $\frac{3}{4}$	13	1,990 $\frac{1}{4}$	1	80
Pratt	"	"	14	2,009	1	77 $\frac{1}{4}$	13	1,745 $\frac{1}{2}$	1	156
Roseberry	"	"	10	1,540 $\frac{3}{4}$	3	36	11	1,569	1	174 $\frac{1}{2}$
Shenston	"	"	2	160 $\frac{1}{2}$	2	119 $\frac{3}{4}$	10	1,393 $\frac{1}{4}$	4	652
Sifton	"	"	14	1,866	2	119 $\frac{3}{4}$	2	324	1	156
Spohn	"	"	1	80 $\frac{1}{4}$	1	2	3	394 $\frac{3}{4}$	1	160 $\frac{1}{2}$
Sutherland	"	"	9	1,418	3	80 $\frac{1}{4}$	7	1,102	2	341
Tait	"	"	1	162	1	164	1	164	1	160
Tovell	"	"	4	657 $\frac{1}{2}$	4	656 $\frac{1}{2}$	5	580	5	580
Worthington	"	"	1	80 $\frac{1}{4}$	1	2	3	394 $\frac{3}{4}$	1	160 $\frac{1}{2}$
Aylesworth	Rainy River..	Alex. McFayden,	1	159 $\frac{1}{2}$	2	169 $\frac{3}{4}$	13	1,990 $\frac{1}{4}$	1	80
Barwick	"	Emo..	6	907 $\frac{1}{4}$	1	70 $\frac{3}{4}$	4	665 $\frac{1}{2}$	1	160
Burris	"	"	2	100 $\frac{1}{2}$	2	100 $\frac{1}{2}$	2	100 $\frac{1}{2}$	1	160
Carpenter	"	"	8	1,286 $\frac{1}{2}$	1	159 $\frac{1}{2}$	6	967 $\frac{1}{2}$	2	319 $\frac{1}{2}$
Crozier	"	"	1	80 $\frac{1}{4}$	1	2	3	394 $\frac{3}{4}$	1	160 $\frac{1}{2}$
Dance	"	"	9	1,418	3	80 $\frac{1}{4}$	7	1,102	2	341
Devlin	"	"	1	162	1	164	1	164	1	160
Dobie	"	"	4	657 $\frac{1}{2}$	4	656 $\frac{1}{2}$	5	580	5	580
Fleming	"	"	1	80 $\frac{1}{4}$	1	2	3	394 $\frac{3}{4}$	1	160 $\frac{1}{2}$
Kingsford	"	"	9	1,418	3	80 $\frac{1}{4}$	7	1,102	2	341
Lash	"	"	1	162	1	164	1	164	1	160
Mather	"	"	4	657 $\frac{1}{2}$	4	656 $\frac{1}{2}$	5	580	5	580
Miscampbell	"	"	1	80 $\frac{1}{4}$	1	2	3	394 $\frac{3}{4}$	1	160 $\frac{1}{2}$
Potts	"	"	3	482	4	651 $\frac{1}{2}$	1	158	2	240
Richardson	"	"	1	158 $\frac{1}{2}$	1	158	2	240	2	240
Roddick	"	"	1	158 $\frac{1}{2}$	1	158	2	240	2	240
Woodyatt	"	"	1	158 $\frac{1}{2}$	1	158	2	240	2	240
Aubrey	Kenora	J. E. Gibson,	7	1,084 $\frac{1}{2}$	1	81 $\frac{1}{2}$	7	1,084 $\frac{1}{2}$	6	852
Britton	"	Dryden..	13	2,017	5	796 $\frac{1}{2}$	1	162	1	162
Eton	"	"	5	639 $\frac{1}{2}$	1	2	3	431	3	764
Langton	"	"	2	222 $\frac{1}{2}$	3	112 $\frac{1}{2}$	4	630 $\frac{1}{2}$	1	122
Melgund	"	"	3	470 $\frac{1}{2}$	3	112 $\frac{1}{2}$	4	630 $\frac{1}{2}$	1	122
Mutrie	"	"	5	581	3	273	3	542	3	350
Redvers	"	"	8	1,097	2	312 $\frac{1}{2}$	5	800	12	1,520 $\frac{1}{4}$
Rowell	"	"	20	3,153	1	4	2	800	12	1,520 $\frac{1}{4}$
Rugby	"	"	7	1,118 $\frac{1}{2}$	1	4	2	800	12	1,520 $\frac{1}{4}$
Sanford	"	"	8	1,270	9	1,442	1	80	1	160
Southworth	"	"	8	1,059	1	88	4	579	1	80
Temple	"	"	10	1,272	1	65	2	242	1	160
Van Horne	"	"	2	240	2	240	2	240	2	240
Wabigoon	"	"	5	599 $\frac{1}{4}$	1	7	4	592 $\frac{1}{2}$	4	717 $\frac{1}{4}$
Wainwright	"	"	5	794	4	634	2	319 $\frac{3}{4}$	2	319 $\frac{3}{4}$
Zealand	"	"	28	3,519	3	217 $\frac{1}{4}$	12	1,753	1	164 $\frac{1}{2}$
Melick	Kenora	H. E. Holland,	12	1,880	1	1	7	1,140	3	508
Pellatt	"	Kenora..	9	1,093	1	29	6	685	6	818

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Balfour.....	Sudbury.....	J. K. MacLennan,							1	160
Blezard.....	"	Sudbury..	5	796	1	$\frac{1}{2}$	4	643 $\frac{1}{2}$	1	60
Broder.....	"	"	1	60						
Capreol.....	"	"	2	297			2	342		
Chapleau.....	"	"	1	136	1	49				
Dell.....	"	"					2	320	4	417
Garson.....	"	"					4	446		
Hanmer.....	"	"	4	516 $\frac{1}{2}$			2	321 $\frac{1}{2}$	2	161
Lumsden.....	"	"	1	80						
Morgan.....	"	"								
Neelon.....	"	"					3	300	1	77
Rayside.....	"	"	1	86			1	101 $\frac{1}{2}$		
Appleby.....	Sudbury.....	John Brown,	2	243 $\frac{1}{2}$			3	342	1	159 $\frac{1}{2}$
Casimir.....	"	Markstay..	6	855 $\frac{1}{2}$			4	590 $\frac{1}{2}$	1	79
Dunnet.....	"	"							1	164 $\frac{1}{2}$
Hagar.....	"	"	10	1,679 $\frac{1}{2}$	2	63	6	760	2	160 $\frac{1}{2}$
Jennings.....	"	"								
Kirkpatrick.....	"	"							1	171
Ratter.....	"	"	3	500			2	232		
Caldwell.....	Nipissing.....	J. P. Marchildon,	1	160						
Cosby.....	"	Sturgeon Falls	2	204 $\frac{1}{2}$					4	534
Grant.....	"	"	3	501 $\frac{1}{2}$	2	1 $\frac{1}{2}$	1	147		
Macpherson.....	"	"								
Martland.....	"	"	1	159 $\frac{1}{2}$			1	159 $\frac{1}{2}$	4	412 $\frac{1}{2}$
Springer.....	"	"							1	82
Abinger.....	Lennox and Addington..	Chas. Booth, Denbigh..							1	219
Canonto, S....	Frontenac....	"	1	39			1	100		
" N.....	"	"								
Clarendon.....	"	"							2	176
Denbigh.....	Lennox and Addington..	"	1	99					1	99
Miller Pt.....	"	"								
Palmerston.....	"	"								
McClintock....	Haliburton...	Unattached.....							1	50
Shawanaga....	Parry Sound..	"							1	2
Airy.....	Nipissing.....	"	2	210			2	210	1	157 $\frac{1}{2}$
Finlayson.....	"	"								
Murchison.....	"	"								
Sabine.....	"	"							3	495
Burns.....	Renfrew.....	"							1	199
Burton.....	Parry Sound..	"			1	1			3	3
Total.....			718	90,143	113	5,767	443	51,745	411	54,349 $\frac{1}{2}$

No. of lots assigned.....225

No. of acres assigned.....28,080

SELBY DRAPER,
Chief Clerk.W. C. CAIN,
Deputy Minister of Lands and Forests.W. R. LEDGER,
Clerk of Free Grants.

Appendix No. 13—Continued

ISLANDS SOLD

Part or Parcel	Township	District or County	Agent	No. of Acres Sold
Island A.....	Mason.....	Parry Sound.....	I. M. Campbell....	4.
“ B (Part).....	“.....	“.....	“.....	1.5
“ B (Part).....	“.....	“.....	“.....	4.63
“ B 429, Georgian Bay.....	“.....	“.....	“.....	.7
Island A, Weslemcoon Lake.....	Ashby.....	Lennox and Addington.....	“.....	5.
Island B, Sharbot Lake.....	Olden.....	Frontenac.....	“.....	1.94
Big Pine Island, Loon Lake.....	Chandos.....	Peterborough....	Wm. Hales.....	1.25
Pine Island, Loon Lake.....	“.....	“.....	“.....	.75
Wolfe Island, Charleston Lake.....	Lansdowne.....	“.....	“.....	52.25
Parcel M C 20, Abrams' Lake.....	Drayton.....	Kenora.....	“.....	1.7
Island F P 97, Pelican Lake.....	“.....	“.....	“.....	.1
Location M C 8.....	“.....	“.....	“.....	.9
Parcel R K 244.....	Zealand.....	“.....	“.....	5.14
Parcel 2, Island 133.....	Baxter.....	Muskoka.....	J. B. Brown.....	1.5
Island South of Big or Tobin's Island.....	Medora.....	“.....	“.....	.34
Island S, Lake Joseph.....	Humphry.....	“.....	“.....	.9
Bonner's Island, St. Mary's Lake.....	Stephenson.....	“.....	“.....	1.88
Echo Island.....	Stanhope.....	Haliburton.....	“.....	2.
Club Island, Island Lake.....	Awere.....	Algoma.....	Thos. Dean.....	2.5
Gorman Island.....	South Crosby.....	Leeds.....	Unattached.....	2.23
Sauvage Island.....	“.....	“.....	“.....	2.70
Waba Island, White Lake.....	Darling.....	Lanark.....	“.....	2.
Idlewylde Island, Lake Nipissing.....	Nipissing.....	Nipissing.....	H. J. Ellis.....	3.4
				99.31

Appendix No. 13—Continued

ISLANDS PATENTED

Part or Parcel	Township	District or County	Agent and Post Office Address	No. of Acres Patented
Island B 357.....	Cowper.....	Parry Sound.....	Miss I. M. Campbell	1.70
“ B 716.....	“	“	“	2.70
“ B 597.....	“	“	“	1.
“ B 358.....	“	“	“	4.
“ C 57 (Part).....	Carling.....	“	“	9.50
“ C 35.....	“	“	“	1.36
“ C 309.....	“	“	“	3.64
“ 842 A.....	Harrison.....	“ .....	“ .....	.40
“ D.....	“ .....	“ .....	“ .....	.34
“ 383 A.....	“	“	“	1.15
Pt. 4, Island 96.....	“	“	“	2.
Pt. Island 355 A.....	“	“	“	4.93
N½ Island B 28.....	Conger.....	“	“	5.
Island B 7311.....	“	“	“	8.80
“ B 285.....	“	“	“	1.70
Pt. Island 3464 T P...	Mowat.....	“	“	5.
Good Luck Island.....	Morrison.....	Muskoka.....	Jas. B. Brown.....	1.
Cranberry or Island A.	“ .....	“ .....	“ .....	.40
				54.62

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. 13—Concluded

List showing number of locations by Returned Soldiers in Sale and Free Grant Territory, respectively.

District	Agency	Number Locations
IN SALE TERRITORY		
Algoma.....	Hearst.....	13
“.....	Kapuskasing.....	13
“.....	Thessalon.....	1
“.....	Sault Ste. Marie.....	Nil
Temiskaming.....	Englehart.....	3
“.....	Cochrane.....	28
“.....	Elk Lake.....	Nil
“.....	Haileybury.....	1
“.....	Matheson.....	19
“.....	New Liskeard.....	Nil
Sudbury.....	Massey.....	1
“.....	Sudbury.....	1
“.....	Unattached.....	13
“.....	Markstay.....	1
Nipissing.....	North Bay.....	7
Thunder Bay.....	Port Arthur.....	11
Kenora.....	Kenora.....	1
		<hr/> 113

Statement showing number of lots resumed for non-performance of settlement duties by, or on behalf of returned soldiers.

IN SALE TERRITORY		
Temiskaming.....	Cochrane.....	28
“.....	New Liskeard.....	5
“.....	Englehart.....	3
“.....	Matheson.....	12
“.....	Hearst.....	19
“.....	Elk Lake.....	Nil
Algoma.....	Massey.....	1
Cochrane.....	Kapuskasing.....	11
Nipissing.....	North Bay.....	2
“.....	Markstay.....	1
“.....	Unattached.....	1
		<hr/> 83

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 14

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1973.

Township	District or County	Agent	No. of acres sold	No. of pur- chase's	No. of sales cancel- led	No. of acres resumed	No. of patents issued	No. of acres patented
Machin.....	Cochrane.....	S. J. Dempsay, Cochrane..	2,561	18	5	670	.....	.....
Blount.....	"	"	1,122 $\frac{1}{2}$	8	22	2,919	2	328
Shackleton.....	"	"	2,769	20	10	1,370	1	4
Brower.....	"	"	3,500	22	22	3,564	4	604 $\frac{1}{2}$
Pyne.....	"	"	1,916 $\frac{1}{2}$	12	5	818	.....	.....
Newmarket.....	"	"	4,031	26	19	3,021 $\frac{1}{2}$	2	306
Fauquier.....	"	"	1,194	8	4	612	3	283
Fox.....	"	"	4,003 $\frac{1}{2}$	25	10	1,619 $\frac{1}{2}$	3	470
Clute.....	"	"	2,404	16	14	2,097	10	1,200
Kennedy.....	"	"	1,347	9	2	302	.....	.....
Calder.....	"	"	4,848	32	14	2,049	2	287
Glackmeyer.....	"	"	1,884	13	6	890	14	1,762 $\frac{3}{4}$
Fournier.....	"	"	1,278 $\frac{1}{2}$	8	7	1,104	1	157
Leitch.....	"	"	2,033	14	4	570	11	476
Colquhoun.....	"	"	2,138	14	2	293	.....	.....
Lamarche.....	"	"	2,544	16	15	2,376 $\frac{1}{2}$	3	484 $\frac{1}{2}$
Casgrain.....	Cochrane.....	J. L. O'Donnell, Hearst...	1,176	8	.....	.....	3	450
Devitt.....	"	"	4,442	31	11	1,738	.....	.....
Eilber.....	"	"	4,984	32	17	2,643	1	7 $\frac{1}{2}$
Hanlan.....	"	"	4,195	27	28	4,339	3	489
Kendall.....	"	"	6,105	56	25	3,650	4	491
Lowther.....	"	"	7,669	52	20	2,905	.....	.....
O'Brien.....	Cochrane.....	H. E. Sheppard, Acting Agent, Kapuskasing...	4,189	43	19	1,841	5	195
Owens.....	"	"	3,489	35	9	893	2	221
Williamson.....	"	"	3,894	40	6	552	.....	.....
Bayley.....	Timiskaming..	Jos. Woollings, Englehart..	.....	.....	.....	.....	.....	.....
Blain.....	" .....	" .....	.....	.....	.....	.....	.....	.....
Catharine.....	"	"	636 $\frac{1}{2}$	4	10	1,598	14	1,037
Chamberlain.....	"	"	31 $\frac{1}{2}$	1	.....	.....	4	660 $\frac{1}{4}$
Dack.....	"	"	40	1	1	159 $\frac{1}{2}$	9	1,314 $\frac{3}{4}$
Davidson.....	" .....	" .....	.....	.....	.....	.....	.....	.....
Eby.....	" .....	" .....	.....	.....	.....	.....	5	162 $\frac{1}{2}$
Evanturel.....	" .....	" .....	.....	.....	.....	.....	5	686
Gross.....	" .....	" .....	.....	.....	.....	.....	.....	.....
Ingram.....	"	"	305 $\frac{1}{2}$	2	1	159 $\frac{1}{2}$	2	310
Marter.....	"	"	481	3	3	480	3	480
Marquis.....	"	"	151 $\frac{1}{2}$	1	1	161 $\frac{1}{2}$	6	844
Otto.....	"	"	1,154	7	3	479	3	109 $\frac{1}{2}$
Pacaud.....	"	"	460	3	3	480	2	298 $\frac{1}{2}$
Pense.....	"	"	187	1	7	1,148 $\frac{1}{2}$	1	37 $\frac{1}{4}$
Robillard.....	" .....	" .....	.....	.....	.....	.....	3	355 $\frac{1}{2}$
Savard.....	" .....	" .....	.....	.....	.....	.....	4	630
Sharpe.....	" .....	" .....	.....	.....	.....	.....	.....	.....
Truax.....	"	"	1,115 $\frac{1}{2}$	7	5	802	1	160
Benoit.....	Timiskaming District.....	J. E. Mills, Matheson..	1,056	7	1	160	1	148
Beatty.....	Cochrane.....	"	234	3	.....	.....	10	819
Bond.....	"	"	1,090	7	1	163	2	210

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Bowman.....	Cochrane.....	J.E. Mills						
		Matheson...	316	2			8	755
Calvert.....	"	"	1,276	8			6	875
Carr.....	"	"	313	2			10	1,593
Clergue.....	"	"	1,601	10			3	329
Currie.....	"	"	3,094	20			3	400
Dundonald.....	"	"	604	4				
Evelyn.....	"	"	160	1	1	157		
German.....	"	"	1,490	9			1	152
Hislop.....	"	"	659	4	1	143	6	809
Matheson.....	"	"	2,704	15	4	675	5	819
Mountjoy.....	"	"	2,026	13			5	738
McCart.....	"	"	1,577	10	1	161	1	159
Playfair.....	"	"	1,290	9			4	637
Stock.....	"	"	2,067	13			4	477
Taylor.....	"	"	857	6			6	821
Walker.....	"	"	874	6			4	399
Armstrong.....	Timiskaming..	J. W. Bolger, New Liskeard...	160	1			2	314
Auld.....	"	"	320	2				
Beauchamp.....	"	"			1	160	2	319
Brethour.....	"	"	218	2			3	477
Bryce.....	"	"	1,280	8	2	319	3	360
Bucke.....	"	"	400	3			4	383
Cane.....	"	"	639	4	3	479	2	310
Casey.....	"	"	358	3			6	834
Dymond.....	"	"					3	388
Firstbrook.....	"	"	479	3			2	321
Harley.....	"	"	397	3			8	1,039
Henwood.....	"	"	648	4	3	483	5	800
Harris.....	"	"	100	1			1	160
Hilliard.....	"	"	145	1			12	1,684
Hudson.....	"	"	605	4			8	1,280
Kerns.....	"	"	161	1			7	961
Lundy.....	"	"	324	2	2	320	2	320
Tudhope.....	"	"	80	1	1	120		
Smyth.....	Timiskaming..	Mark Morgan, Elk Lake.....					1	90
Lorrain.....	Timiskaming..	Neil J. McAulay, Haileybury...	642	4	3	393	5	503
Mason.....	Nipissing.....	J. P. Marchildon, Sturgeon Falls..					1	159
Scollard.....	"	"	476	3			3	324
Hugel.....	"	John Brown, Markstay....	480	4			4	640
Loudon.....	"	"	289	2				
Phelps.....	"	W. J. Parsons, North Bay....	3,204	20				
Widdifield.....	"	"	639	5			10	1,280
Awrey.....	Sudbury.....	R. A. Teasdale, Massey.....					1	147
Hallam.....	"	"	552	4			2	372
Harrow.....	"	"	368	3				
May.....	"	"	321	2			1	75
Salter.....	"	"	160	1			4	641

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of pat nts issued	No. of acres patented
Shedden.....	Sudbury.....	R. A. Teasdale, Massey.....					1	50
Victoria.....	".....	".....					2	295
Bigwood.....	Sudbury.....	J. K. Maclellann, Sudbury....	140	1			4	488
Delamere.....	".....	".....	525	3			1	155
Dowling.....	".....	".....	314	2				
Loughrin.....	".....	".....	317	2				
McKim.....	".....	".....	160	1				
Drayton.....	Kenora.....	H. E. Holland, Kenora....	253	2			2	295
Bright.....	Algoma.....	Thomas Dodds, Thessalon...	154	1				
Johnson.....	".....	".....					2	120
Patton.....	".....	".....	166	1				
Striker.....	".....	".....	160	1			2	171
Thompson.....	".....	".....	58	1			1	58
Aweres.....	Algoma.....	Thomas Dean, Sault Ste. Marie	781	5			2	309
Tarentorus.....	".....	".....					3	326
Vankoughnet...	".....	".....	170	1			2	319
Watten.....	Rainy River...	C. J. Hollands, Fort Frances...	357	2				
Forbes.....	Thunder Bay...	S. H. Wilson, Port Arthur...	2,634	16			2	216
Lyon.....	".....	".....	895	6				
Nipigon.....	".....	".....	311	2			1	161
Upsala.....	".....	".....	857	6				
Nairn.....	Sudbury.....	E. Arthurs, Espanola....					2	314
Admaston.....	Renfrew.....	Unattached.....	371	4				
Arran.....	Bruce.....	".....					1	133
Badgerow.....	Nipissing.....	".....	556	4			4	495
Bagot.....	Renfrew.....	".....	100	1			6	575
Bastedo.....	Nipissing.....	".....	175	2			2	319
Bruce.....	Bruce.....	".....	300	3			2	150
Bedford.....	Frontenac.....	".....					2	295
Bentinck.....	Grey.....	".....					5	359
Burford.....	Brant.....	".....					1	50
Bromley.....	Renfrew.....	".....					1	100
Barrie.....	Frontenac.....	".....					2	65
Belmont.....	Peterborough...	".....					1	100
Creighton.....	Sudbury.....	".....					1	158
Cleland.....	".....	".....	131	1				
Cook.....	Cochrane.....	".....	160	1				
Cobden.....	Algoma.....	".....	334	2			1	308
Crerar.....	Nipissing.....	".....	375	3			4	455
Dalton.....	Victoria.....	".....	49	1			4	341
Darling.....	Lanark.....	".....					2	326
Dennison.....	Sudbury.....	".....	112	1			1	112
Derby.....	Grey.....	".....	100	1			1	100
Egremont.....	".....	".....					1	8
Elzevir.....	Hastings.....	".....	100	1			1	100
Fairbank.....	Sudbury.....	".....	300	2	1	125	2	278

Appendix No. 14—Concluded

Township.	District or County.	Agent.	No. of acres sold	No. of pur- chases	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Falconer.....	Nipissing.....	Unattached.....	328	2			2	328
Fitzroy.....	Carleton.....	"					1	100
Field.....	Nipissing.....	"	425	3			5	581
Gibbons.....	"	"	183	2			1	152
Graham.....	Sudbury.....	"					11	1,695
Guibord.....	Cochrane.....	"	367	2				
Harvey.....	Peterborough..	"					3	407
Horton.....	Renfrew.....	"	100	1				
Howick.....	Huron.....	"					1	100
James.....	Timiskaming..	"					2	231
Kennebec.....	Frontenac.....	"	1,202	10			5	647
Kaladar.....	Lennox and Addington...	"					1	128
Lavant.....	Lanark.....	"	159	1				
Lorne.....	Sudbury.....	"	586	4			6	1,117
Louise.....	"	"	272	2			7	1,015
Matchedash...	Simcoe.....	"					5	216
Marmora.....	Hastings.....	"	100	1				
Medonte.....	Simcoe.....	"					1	180
Maisonville...	Temiskaming..	"					4	429
McNab.....	Renfrew.....	"					1	50
Olden.....	Frontenac.....	"	214	3			1	160
Oso.....	"	"	365	3			3	366
Osprey.....	Grey.....	"	100	2				
Proton.....	"	"					1	100
Rutherford....	Manitoulin...	"	160	1				
Ross.....	Renfrew.....	"					1	100
Rama.....	Ontario.....	"					6	552
So, Sherbrooke..	Lanark.....	"					1	92
Sandwich East..	Essex.....	"	58	1			2	89
Sydenham.....	Grey.....	"					1	50
Seymour.....	Northumber- land.....	"	200	1				
Somerville.....	Victoria.....	"					1	93
Sheffield.....	Lennox and Addington...	"					1	100
Tiny.....	Simcoe.....	"					2	22
Trill.....	Sudbury.....	"	129	1				
Tudor.....	Hastings.....	"	100	1			3	260
Waters.....	Sudbury.....	"	161	1			1	81
Whitney.....	Temiskaming..	"	161	1				
Wilberforce....	Renfrew.....	"					2	175
Total.....			137,977	978	355	52,273	471	56,953

Number of lots assigned.....613 Number of acres assigned.....83,981

J. E. DRINKWATER,
Clerk in charge.

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. 14—Concluded

Statement showing the number of purchasers, acres sold and of patents issued in Townsites, during the year ending 31st October, 1923.

Townsite.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of patents issued.	No. of acres patented.
Alexandra.....	Cochrane.....	Unattached.....	1.00	4	.....	.....
Belleville.....	Hastings.....	".....	.50	1	1	.50
Capreol.....	Sudbury.....	".....	.64	3	6	.72
Cobalt, North.....	Timiskaming.....	".....	.11	1	.....	.....
Dryden.....	Kenora.....	".....	.25	1	3	.75
Foleyet.....	Sudbury.....	".....	1.00	4	1	.06
Fordwich.....	Huron.....	".....	2.00	1	1	2.00
Hearst.....	Cochrane.....	".....	19.24	3	7	18.50
Hornepayne.....	Algoma.....	".....	.80	5	.....	.....
Kirkland Lake.....	Timiskaming.....	".....	1.72	14	11	.87
Kapuskasing.....	Cochrane.....	H. E. Sheppard..	27.37	87	3	15.39
Killarney.....	Algoma.....	Unattached.....	.17	1	1	.17
Macfarlane.....	Kenora.....	".....	3.82	11	3	1.32
Moonbeam.....	Timiskaming.....	".....	.16	1	.....	.....
Missanabie.....	Algoma.....	".....	1.87	7	2	.34
Petewawa.....	Renfrew.....	".....	.25	1	1	1.50
Sioux Lookout.....	Kenora.....	".....	.94	3	9	2.20
Swastika.....	Timiskaming.....	W. G. A. Wood..	.85	5	1	.23
Winnipeg River Crossing	Kenora.....	Unattached.....	.88	1	1	.23
			63.57	154	51	44.78

SELBY DRAPER,
Chief Clerk.
J. B. PROCTOR,
Clerk in Charge.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 15.

HONOURABLE JAMES LYONS,
Minister of Lands and Forests,
Toronto, Ont.

Sir,—Surveys were carried out under instructions from this department during the past year comprising the running of approximately 200 miles of base and meridian lines; 600 miles of township outlines; 2,000 miles of lake and river traverse, subdivision of two townships into lots and concessions and various timber and other miscellaneous surveys.

BASE AND MERIDIAN LINES

Phillips & Benner, Ontario Land Surveyors, Port Arthur;
K. G. Ross, Ontario Land Surveyor, Sault Ste Marie, Ont.,
were engaged on base and meridian line work in the territory west of the Nepigon Forest Reserve, district of Thunder Bay, north and south of the Canadian National Railway.

TOWNSHIP BOUNDARIES

J. W. Fitzgerald, Ontario Land Surveyor, Peterborough;
Charles V. Gallagher, Ontario Land Surveyor, South Porcupine;
McAuslan, Anderson & Moore, Ontario Land Surveyors, North Bay;
Sutcliffe & Neelands, Ontario Land Surveyors, New Liskeard;
Speight & VanNostrand, Ontario Land Surveyors, Toronto;
H. J. Beatty, Ontario Land Surveyor, Pembroke,
were engaged on the survey of township boundaries in the districts of Sudbury, Cochrane and Algoma.

T. J. Patten, Ontario Land Surveyor, Little Current, subdivided the township of Mongowin, district of Sudbury.
G. P. Angus, Ontario Land Surveyor, North Bay, subdivided the westerly part of the township of Thorning, district of Cochrane.

LAKE AND RIVER TRAVERSE

James S. Dobie, Ontario Land Surveyor, Thessalon, traverse of English River, district of Kenora.
R. S. Kirkup, Ontario Land Surveyor, Port Arthur, traverse of Minnie-takie Lake and Big Sandy Lake, district of Kenora.
C. R. Kenny, Ontario Land Surveyor, Sault Ste Marie, traverse of Moose River, district of Cochrane.
J. T. Coltham, Ontario Land Surveyor, Parry Sound, traverse of part of Kabinakagami River, districts of Algoma and Cochrane.
T. G. Code, Ontario Land Surveyor, Cobalt, traverse of part of Kabinakagami River, district of Cochrane.
D. J. Gillon, Ontario Land Surveyor, Fort Frances, traverse of Seine River, district of Rainy River.
C. H. Wilkins, Ontario Land Surveyor, Hastings, traverse of Canoe and Smoke Lakes, in Algonquin National Park, district of Nipissing.
Lang & Ross, Ontario Land Surveyors, Sault Ste. Marie, traverse of part of Sturgeon River and Upper English Rivers, district of Kenora.

TIMBER BERTH SURVEYS

Timber line in Township 9 Z, district of Sudbury, by J. W. Fitzgerald, Ontario Land Surveyor, Peterborough.

Timber lines in the township of Kittson and east of the township of Brigstocke, district of Timiskaming, by Sutcliffe & Neelands, Ontario Land Surveyors, New Liskeard.

MISCELLANEOUS SURVEYS

Survey of summer resort parcels on Rama Island and also on islands near mouth of the Severn River, by C. E. Fitton, Ontario Land Surveyor, Toronto.

Survey of summer resort parcels at Bruce Beach in the township of Huron, county of Bruce, by E. D. Bolton, Ontario Land Surveyor, Listowel.

Survey of parcels of land at Severn River, crossing Canadian Pacific Railway, township of Matchedash, county of Simcoe, by L. D. N. Stewart, Ontario Land Surveyor, Toronto.

C. E. Fitton, Ontario Land Surveyor, Toronto, carried on the inspection of survey work in the field during the past season.

Detailed reports of the several surveys for which returns have been made during the year will be found in Appendices 20 to 34, inclusive.

L. V. RORKE,
Director of Surveys.

Toronto, October 31st, 1923.

Appendix No. 16

Statement of Municipal Surveys confirmed during the twelve months ending
October 31st, 1923.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes 1920, chap. 48, sec. 11-18, inclusive
1	George L. Brown..	720	July 2, 1919.	To survey the road allowance between the 4th and 5th concessions of the township of Williamsburg across lots 10, 11 and 12, in said township, and that stone or other durable monuments be placed to mark the boundaries of the same.	June 30, 1923.
2	Frank N. Rutherford.....	731	Aug. 24, 1922	To survey the road allowance between the townships of Grantham and Niagara, extending from the Queenston and Grimsby Provincial Road to the lake shore road, and to plant durable monuments to mark the said road allowance as set out herein.....	July 16, 1923.
3	E. T. Wilkie.....	732	Nov. 22, 1922	To survey the original road allowance between lots 31 and 32 in the 1st concession of the township of Lancaster, county of Glengarry, from the Provincial Highway south to the St. Lawrence River, and to plant standard iron monuments to mark the said original road allowance.....	July 7, 1923.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1923.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey
1	E. T. Wilkie	732	Nov. 22, 1922	To survey the original road allowance between lots 31 and 32 in the 1st concession of the township of Lancaster, county of Glengarry, from the Provincial Highways south to the St. Lawrence River and to plant standard iron monuments to mark the said original road allowance.
2	Oliver Smith	733	Mar. 19, 1923	To survey the original road allowance between the 13th and 14th concessions across lot 21, in the township of Harvey, county of Peterborough, and plant standard iron monuments to mark the limits of said road.
3	Roger M. Lee	734	June 2, 1923.	To survey that part of the city of Brantford, in the county of Brant, lying between the westerly side of Rawdon Street and the centre line of Stanley Street and between the southerly side of Colborne Street, and the lands of the corporation of the city of Brantford on the north and to plant durable monuments to mark the several street lines within this described limit.
4	A. G. Ardagh	735	June 22, 1923	To survey the line between the 15th and 16th concessions of the township of Sunnidale and the road allowance between lots 3 and 4, 6 and 7, 9 and 10 in the 16th concession.
5	Speight & Van Nostrand	736	Aug. 22, 1923	To survey the street known as Spadina Crescent in the city of Toronto, in the county of York, as shown on registered plan D 33.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 18

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1923.

No.	Date of Instructions	Name of Surveyor	Description of Surveys	Amount paid
1	May 31, 1923	G. P. Angus.....	Survey the west part of the township of Thorning, district of Cochrane.....	\$2,350 00
2	April 15, 1923	H. J. Beatty.....	Survey certain township outlines in the district of Algoma, west of A. C. Ry..	7,450 00
3	April 9, 1923	J. T. Coltham.....	Traverse survey of Kabinakagami Lake and Kabibikagami River, district Cochrane and Algoma.....	3,000 00
4	April 8, 1923	T. G. Code.....	Traverse part of Kabinikagami River, district Cochrane.....	2,160 00
5	April 8, 1923	J. S. Dobie.....	Traverse of part of English River and islands, districts Kenora and Patricia .	8,000 00
6	April 15, 1923	J. W. Fitzgerald.....	Survey certain township outlines south of C.P.R., district of Sudbury.....	6,120 00
7	Aug. 30, 1923	J. W. Fitzgerald....	Survey of timber lines in township 9Z, district Sudbury.....	250 00
8	April 5, 1923	D. J. Gillon.....	Traverse of the Seine River, district of Rainy River.....	8,000 00
9	April 5, 1923	C. V. Gallagher....	Survey certain township outlines along the C. P. Ry., district of Sudbury....	6,100 00
10	April 10, 1923	R. S. Kirkup.....	Traverse shores of Minnetakie in district of Kenora.....	3,000 00
11	April 15, 1923	C. R. Kenny.....	Traverse survey of Moose River, district of Cochrane.....	4,160 00
12	June 1, 1923	T. J. Patten.....	Survey of township Mongowin in district Sudbury.....	1,000 00
13	April 15, 1923	K. G. Ross.....	Base and meridian line, district Thunder Bay.....	7,267 50
14	May 16, 1923	G. F. Summers....	Survey addition town plot of Alexandra, district of Cochrane.....	100 00
15	Aug. 30, 1923	Sutcliffe & Neelands	Survey timber lines in the township of Kitson and east of Brigstocke, district of Timiskaming	200 00
16	April 15, 1923	Sutcliffe & Neelands	Survey certain township outlines east of the Abitibi, district of Cochrane.....	6,075 00
17	June 18, 1923	C. H. Wilkins.....	Resurvey of shores of Canoe and Smoke Lakes.....	2,940 00
18	April 15, 1923	McAuslan, Anderson & Moore.....	Survey certain township outlines along C.P.R., district of Sudbury.....	6,050 00
				<u>\$74,222 50</u>

L. V. RORKE,
Director of Surveys.W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 19

Statements of Crown Surveys completed and closed during the twelve months ending
October 31st, 1923.

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	Sept. 26, 1922	G. P. Angus.....	Resurvey of certain lots in the township of Blount, district of Cochrane.....	\$922 70
2	April 12, 1922	H. J. Beatty.....	Survey certain township outlines, district of Algoma.....	4,157 85
3	April 27, 1922	Jas. T. Coltham....	Traverse of Severn River between the townships of Matchedash, Baxter, Morrison, Wood.....	2,296 55
4	April 12, 1922	Jas. S. Dobie.....	Traverse the shore of the English River and the islands therein, districts of Kenora and Patricia.....	4,216 00
5	April 12, 1922	J. W. Fitzgerald....	Certain township outlines south of the Canadian Pacific Railway, district of Sudbury.....	1,884 83
6	May 8, 1922	C. E. Fitton.....	Inspection of surveys, 1922.....	1,230 44
7	April 12, 1922	Chas. V. Gallagher .	Certain township outlines along the Canadian Pacific Railway, district of Sudbury.....	3,432 89
8	April 17, 1922	D. J. Gillon.....	Traverse of islands and part of the shore lines Lake of Woods, district Rainy River.....	5,844 70
9	April 18, 1922	C. R. Kenny.....	Traverse of portion of Abitibi River, district of Cochrane.....	3,071 97
10	April 18, 1922	Roy S. Kirkup.....	Traverse shores of Wabigoon Lake, etc., district of Kenora.....	3,687 20
11	April 12, 1922	McAuslan, Anderson & Moore...	Certain township outlines along Canadian Railway, district of Sudbury....	2,067 23
12	April 1, 1922	Mooney & Gill.....	Certain lines in unsurveyed territory, district of Sudbury.....	2,238 00
13	April 21, 1922	Phillips & Benner...	Base and meridian lines, district of Thunder Bay.....	4,027 21
14	April 26, 1922	T. J. Patten.....	Traverse part Mississaga River, district Algoma.....	4,939 71
15	April 22, 1922	K. G. Ross.....	Base and meridian lines, district Thunder Bay.....	2,659 77
16	April 12, 1922	Sutcliffe & Neelands.	Certain township outlines on Abitibi River, district of Cochrane.....	2,122 39
17	April 12, 1922	Speight & Van Nostrand.....	Certain township outlines on Abitibi River, district of Cochrane.....	2,474 57
18	April 5, 1922	E. T. Wilkie.....	Renewal portion boundary between Ontario and Quebec.....	548 90
19	April 27, 1922	C. H. Wilkins.....	Traverse certain lakes and rivers, townships Methuen and Anglesea.....	1,581 35

Appendix No. 19—Concluded.

Statements of Crown Surveys completed and closed during the twelve months ending
October 31st, 1923.

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
20	March 7, 1921	J. W. Pierce.....	Survey boundary between Ontario and Manitoba.....	\$3,959 05
21	June 5, 1922	M. M. Gibson.....	Certain survey work, Presquile Park, county of Northumberland.....	805 91
22	July 25, 1922	T. G. Code.....	Traverse Reuben Lake, etc., district Nipissing.....	1,583 81
23	Aug. 21, 1922	L. Mooney.....	Survey timber berth line, township 9 Z, district of Sudbury.....	377 43
24	Sept. 1, 1922	K. G. Ross.....	Survey Island Lake, township Aweres..	343 00
25	June 30, 1922	K. G. Ross.....	Survey Pine Island in St. Mary's River.	745 77
26	Dec. 11, 1922	K. G. Ross.....	Survey of water power possibilities, English and Sturgeon Rivers, district of Kenora.....	2,269 97
27	Nov. 17, 1922	C. E. Fitton.....	Survey part of Rama Island.....	257 75
28	April 18, 1922	R. S. Kirkup.....	Survey of islands in Wabigoon Lake, district of Kenora.....	184 50
29	April 15, 1923	Speight & Van Nostrand.....	Township outlines in the vicinity of Mattagami River, district of Cochrane	9,722 93
30	April 15, 1923	Phillips & Benner..	Survey certain meridian and base lines, district of Thunder Bay.....	9,355 92
31	April 27, 1923	C. E. Fitton.....	Inspection of surveys, 1923.....	4,431 00
32	April 30, 1923	C. E. Fitton.....	Survey Rama Island at Washaga and islands in Severn River.....	561 00
33	.....	.....	Architectural iron and bronze posts.....	500 00
40	.....	L. D. N. Stewart...	Services and expenses in connection with Severn River survey.....	152 50
41	June 19, 1923	E. D. Bolton.....	Survey of cottage sites at Bruce Beach, township Huron.....	803 35
42	.....	L. D. N. Stewart...	Services and expenses re extension of parks.....	173 17
Total.....				\$94,055 30

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 20

SURVEY OF TOWNSHIP 9 Z, DISTRICT OF SUDBURY

PETERBORO, ONT., December 7th, 1923.

Sir,—I beg to report that, agreeable to your instructions dated August 30th, 1923, I have completed the survey of the line between the east and west halves of township 9 Z in the district of Sudbury and beg to submit herewith plan—timber plan, field notes and accounts, all of which I trust will be found satisfactory to your department.

I commenced the survey at an iron post planted by myself earlier in the season to mark the three-mile point on the north boundary of the township 9 Z and from this point I ran due south astronomically six miles, three chains, and seventy-six links where I intersected the north boundary of the township 8 Z, surveyed by Ontario Land Surveyor James Dobie in 1913. As I had taken an observation on Polaris for azimuth on June 27th last at a point just eleven chains and sixty-three links east of my present starting point—particulars of which I have given in the accompanying field notes. I did not think it necessary to observe again at the exact starting point. The country south, for the first thirty-three chains and twenty-five links, is rocky and was burnt over in the year 1921 and there is now on the ground standing and fallen dead spruce—Banksian pine, white birch and poplar with small poplar springing up. At the above-named point we reach the green timber consisting of spruce from ten to twenty inches in diameter, white and yellow birch and Banksian pine up to sixteen inches in diameter, and a fair quantity of white pine running from ten to thirty inches in diameter, the above size and class of timber, with the exceptions of very small patches of swamp and brule, continues to the end of the line. The country is of a very rolling rocky character and is absolutely devoid of agricultural land, but to my idea contains much valuable white pine and other classes of timber. We had snow and a very hard frost on the 13th of September, the weather continuing cold and cloudy for the balance of the work, so that I was unable to get another observation. I am glad to report, however, that according to my own chainage on the north boundary of township 9 Z, and that of Mr. Dobie's on the north boundary of the township 8 Z, I have succeeded in practically dividing the township into east and west halves.

I have the honour to be, Sir,

Your obedient servant,

J. W. FITZGERALD,

Ontario Land Surveyor.

*To the Honourable Minister of Lands and Forests,
Toronto, Ontario.*

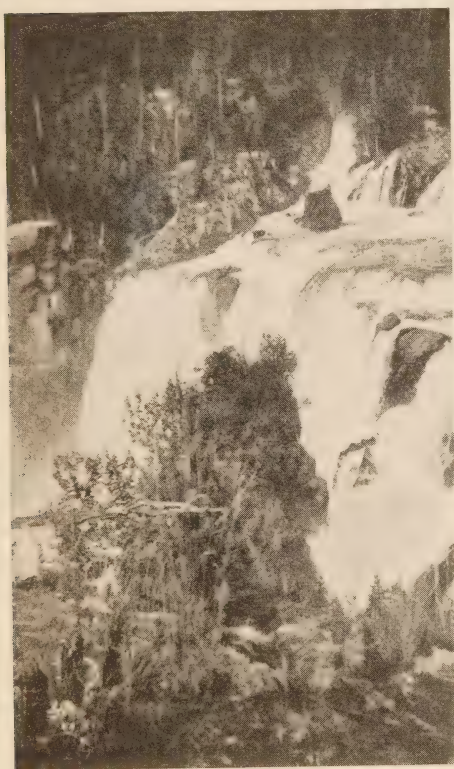
Appendix No. 21

SURVEY OF PORTION MISSISSAGA RIVER

LITTLE CURRENT, ONT., February 21st, 1923.

Sir,—I have the honour to submit to you the following report on the survey of a portion of the Mississaga River which I have made in accordance with instructions from your department, dated April 26th, 1922.

I left here on June 3rd, by motor boat, with a part of my party and on arrival at the mouth of the Mississaga River engaged more canoemen.



Aubrey Falls, Mississaga River.



Going up a heavy rapids on Mississaga River.

I started the work near mining location No. 3 in Gladstone township and on the completion of that section of it proceeded up the river to find the next starting point, the east limit of the township of Otter. Although we watched carefully for that line we missed finding it partly through underestimating our speed. When we finally located our position the camp had gone well up into Berth F, so I decided to complete the survey of that portion on our return down the river. On the completion of the work through Bark Lake and up to the intersection of the north boundary of Berth T, the north boundary of the Mississaga Forest Reserve, we found that on account of the very low water it

was unadvisable to return down the Mississaga and returned by the canoe route to Biscotasing and railway to Little Current where we arrived on the 26th of September.

As directed, posts, numbered and properly marked, were planted well above flood water at intervals not exceeding about one mile and at every lot or township line which we found. The posts are all of cedar with the exception of a few tamarac ones where cedar was not convenient. Where there was soil a hole for the post was dug about two feet deep and where loose stones were to be found, a cairn or mound, usually four to five feet wide at the base, was built around the post. The cairns are noted in the field notes.

On the heavy rapids or falls levels were taken to ascertain the fall. On all considerable falls of water check levels were also made.

There is considerable white and red pine and in places there appears to be an enormous quantity of it as indicated in the notes. The kind and size of timber and brule country was carefully noted throughout.

On nearing Bark Lake a good deal of tamarac up to six inches in diameter was observed.

Along the whole course of the river and lakes the soil is sand and sandy loam and gravel with occasional beds of cobble stone. In only one or two places was any clay subsoil noticed. There are no great tracts of farming land.

Away from the river and occasionally along the river there are rocky hills and ranges of rocky hills from 50 feet to 200 or 300 feet high.

Minisinokwa, Lower Green and Bark Lakes which we surveyed, are very attractive and contain many desirable islands. The hills around those lakes are mostly well timbered and slope beautifully down to the waters. There are also many fine sand beaches on those lakes.

With the returns I am forwarding a number of films of photographs made of some interesting spots in the country traversed.

I have the honour to be, Sir,

Your obedient servant,

T. J. PATTEN,

Ontario Land Surveyor.

*To His Honour, Minister Lands and Forests,
Toronto.*

Appendix No. 22

SURVEY OF SHORE LINE AND ISLANDS, LAKE OF THE WOODS,
DISTRICT OF KENORA

FORT FRANCES, ONT., February 24th, 1923.

Sir,—I have the honour of submitting this report on the traverse survey of the shore line and islands in the southern part of Lake of the Woods, made under instructions from the Department of Lands and Forests, dated May 18th, 1922.

This survey being a continuation of that made in 1921, was conducted on the same system, the original surveys made by the Dominion Government forming the basis: the surveys on the ground and the plans thereof being prepared to correspond with ranges 22, 23, 24, 25 and 26, east of the principal meridian.

The survey was commenced immediately after the receipt of instructions, the main shore traverse commencing at a post marked 12 M. planted at the end of the traverse made in 1921. This post is at the westerly extremity of the peninsula between Stoney Portage and Stevens Bay, which form part of Sabaskong Bay.

The various islands were traversed in the usual manner:—polaris observations being taken during the course of the work—observations at elongation were taken at all main observation stations, while time observations, based on the tables supplied by the department, were taken at various points on the traverse as the work progressed.

In making the traverse of the main shore separate traverses were made of the different parts, Turtle Lake and Obabikon Lake being also kept separate. The fixed notes have been prepared for each of the divisions separately as follows:

1. *Stevens Bay*—From the 12 M. post at the end of the 1921 traverse to a point nearly due north therefrom.

2. *Sabaskong and Button Bays*—From the end of the traverse No. 1 to an iron post marking the west extremity of the south boundary of I. R. 35 B, omitting Turtle Lake.

3. *Turtle Lake*.

4. *Obabikon Lake South*—Commencing at the end of traverse No. 2 ending at the end of traverse No. 5.

5. *Obabikon Lake North*—Commencing at an iron post marking the south west angle I. R. 35 B, thence to the end of traverse No. 4.

6. *Miles Bay*—From the same point of commencement as No. 5 to the end of the season's work.

Mile posts were planted continuously from 0. miles at the aforesaid 12 M. post on traverses 1, 2 and 5, except when the traverse crossed Indian reserves on which the posts were omitted—traverse 3, 4 and 5 were posted separately.

Continuous traverses were run through the islands, connecting with the main shore traverse and with various points on the traverse made in the previous season. The whole system finally closing on a post planted in 1921 at station 68 on the traverse of Dawson Island—G. 1793.

During the progress of the survey the courses and distances of the traverses were worked out by latitude, and departure in the same manner as in 1921, while the island traverses were plotted, and any errors detected were rectified by re-reading angle and distances until the traverse closed satisfactorily.

Plans and field notes have been prepared in the same manner as those of last season; island description and acreage being shown on each plan.

In some general descriptions of the islands given in 1921 holds good for this season's work. There are many very fine islands for summer resort purposes, on nearly all of which there is valuable white, red or Jack pine timber.

There was no delay in the season's work from heavy wind. The survey was held up for a day or two in October on account of very dense smoke from forest fires, principally in Minnesota.

The plans being prepared in accordance with the original ranges, should be joined to those of last season with no difficulty.

I have the honour to be, Sir,

Your obedient servant,

D. J. GILLON,

Honourable Minister of Lands and Forests,
Toronto, Ontario.

Ontario Land Surveyor.

Appendix No. 23

SURVEY OF LAKES AND RIVERS, DISTRICT OF TIMISKAMING

COBALT, February 28th, 1923.

Sir,—In obedience to your instructions, dated July 25th, 1922, to traverse certain lakes in the district of Timiskaming, I have the honour to report as follows:

ROUTINE OF WORK

The work was commenced with the survey of Reuben Lake on August 7th. Completing this survey we moved camp on August 14th to Redwater Lakes. Surveyed Rankin Lake, Upper and Lower Redwater Lakes and moved to Boyce Lake on August 23rd. On September 3rd, we moved to Wicksteed Lake and carried on with the survey of this lake to the south boundary of the township of Kenny, completing the survey and moving to Cobalt on September 23rd.

The following is the mileage of traverse:

Reuben Lake.....	13 miles.
Rankin Lake.....	4½ “
Upper and Lower Redwater Lakes.....	10¼ “
Royce Lake.....	16¾ “
Wicksteed Lake.....	58¼ “
Total.....	102¾ “

METHOD OF SURVEY

The method of survey was the same as in previous years, *i.e.*, transit and stadia. Particular attention was taken in the blazing and marking of trees on islands and at about one mile intervals along the shore.

In cases where township lines crossed the lakes they were properly posted at one chain in perpendicular width from the shore. Bearing trees were marked and both posts and bearing trees are shown in the plans and field notes.

DESCRIPTION OF LAKES

Reuben, Rankin, Upper and Lower Redwater and Boyce Lakes are all very similar as to shore line. The shore line being fairly high and mostly rocky. The timber differs somewhat. This is shown on the plans.

Wicksteed Lake, this being farther south than the lakes previously mentioned, the overburden along the shores is heavier and in many places is a good clay loam—most suitable for farming. The country around the lake has been timbered over for years. There is a very extensive brule to the east of the north part of the lake, apparently running a little to the east of south. I walked over six miles through this and it continued farther. The plan shows the timber close to the shore at different parts of the lake.

Owing to the lake level being raised, we had considerable difficulty at some places in making the survey. This was more or less overcome by having the rodman take compass shots through the flooded timber from the several points on which he gave me readings, estimating as nearly as possible the distance

to the shore. These are shown in the field notes, but are not shown on the plans, as they are not measured distances. The points at which stadia shots were taken are marked with blue chalk on the trees and if it is required actual measurements may be taken any time in the winter.

Accompanying this report are:

Plans—Reuben Lake, Rankin Lake, Upper and Lower Redwater Lakes, Royce Lake, Wicksteed Lake.

Diary.

Field Notes—one book containing all notes.

Time book.

The above is respectfully submitted.

I have the honour to be, Sir,

Yours obedient servant,

T. G. CODE,

Ontario Land Surveyor.

Cobalt, Ontario, February 28th, 1923.

Appendix No. 24

TRAVERSE PART OF ENGLISH RIVER, DISTRICT OF PATRICIA

THESSALON, ONT., April 24th, 1923.

Sir,—In accordance with your instructions, date April 18th, 1922, I spent the summer of 1922 in making a traverse of part of the English River and lake expansions of the same, and beg to submit the following report.

The survey was commenced at the outlet of Lac Seul and continued down stream as far as Indian Lake where operations were discontinued for the season. A careful traverse of the main river and all lake expansions, including Mattawa River, Shallow Lake and Little Shallow Lake was made. In addition to which the survey of Trout Lake River, Cedar River, Long Legged River and Wabigoon River as far as the first falls on each of these streams.

The survey was made by the usual method of transit and stadia, controlled on some of the larger lakes by triangulations expanded from carefully chained bases. Astronomic observations were taken very frequently and bearings were checked by long control sights wherever circumstances would permit.

At frequent intervals along the shore, averaging about a mile apart, substantial wooden posts were planted in cairns of stones. Each of these posts with very few exceptions was planted at a transit station. The posts were numbered consecutively from one upwards, each post being marked with the letter P, followed by the number of the post, thus "P. No." All posts were marked with a proper scribing iron.

All islands within the limits of the survey were carefully traversed and tied to transit stations on the main shore. The islands were numbered consecutively from one upwards. Most of the islands were marked by a post set in a substantial mound of stones, the post being marked with the letter "I" followed by the number of the island, thus "I. No.". In some cases an island was marked by a prominent tree blazed conspicuously and marked

in a manner similar to the posts. In cases where there were no trees and where it appeared likely that a post would be moved by ice, no distinguishing mark was left, but all such islands can be easily identified by reference to the plan of the survey.

At each of the rapids and falls where there is any possibility of future hydro-electric developments, a site was laid out to provide for such development. These sites are all large enough to control the various water powers and provide ample room for the construction of such dams, flumes, and other structures as may be necessary. The lines around these sites were not cut out on the ground, but are indicated on the plans and the proper position of these lines is marked on the ground by substantial posts in mounds of stone, erected on each of the projected lines a sufficient distance back from the shore to ensure their permanency. These posts are marked with the letters W.P.R. to indicate water power reserve.

No levels were run at any of these falls as all information regarding the heights of the different falls, flow of water, etc., had already been obtained by the Ontario Hydro Power Commission and by the Dominion Water Power Branch of the Department of Interior. In addition to this a line of precise levels has been run during the past few months down this portion of the English River by the Geodetic Survey Branch of the Department of the Interior, Ottawa.

A copy of the field plan of my survey showing the location of all monuments planted during the season was sent to the Geodetic Survey Branch last fall, in order that the standard bench marks established by their parties could be tied to the monuments planted by myself wherever possible.

The English River forms the boundary between the districts of Kenora and Patricia. It is a large stream as is shown by the fact that the discharge as determined by the Ontario Hydro-Electric Power Commission's engineers at Oak Falls, on October 19th, 1915, was found to be 9,358 cubic feet per second. There are several sites suitable for water power development on a large scale, and the large stream flow coupled with the splendid facilities for storage, render the power possibilities of this river of great importance. The Dominion Water Power Branch of the Department of the Interior has collected very complete data regarding the power possibilities of the English River and the reports are available for those who are interested.

The English River flows from Lac Seul in a general westerly and south-westerly direction. The first falls occur a couple of miles down stream from Lac Seul, where Upper and Lower Ear Falls, which are only about a quarter of a mile apart, drop twelve feet and nineteen feet respectively, giving a combined drop of approximately thirty-one feet. From Ear Falls the river continues with gentle current for a distance of about fourteen miles to Camping Lake. This lake is over two miles across and a short distance below the lake the river breaks through a narrow gorge less than a chain across at Manitou Chute, where there is a drop of three and a half feet. A quarter of a mile down stream is situated Manitou Falls, where there is a total drop of twenty-eight and a half feet in a quarter of a mile. The combined head at Manitou Falls including Manitou Chute would be about thirty-two feet, which with the large stream flow of the English River would make a power of great importance. There is a very good site for the construction of a dam at the foot of Manitou Falls.

Between Manitou Chute and Manitou Falls, Cedar River enters from the southeast. This river was traversed for about two miles up to the first falls. The portion of Cedar River traversed is fairly wide and flows with a sluggish current through a clay country and is bordered for the most part with

grass and willow flats with hills behind timbered with large poplar, spruce, jack pine, balsam, etc.

From Lac Seul to Camping Lake the English River flows through a clay country. The immediate shore in many cases is low, particularly around the many small tributaries which flow into it, but generally speaking rises considerably a short distance back. There are some rock exposures but not many, and they are mostly covered with a heavy mantle of clay. The most prominent rock exposures are at Upper and Lower Ear Falls. The prevailing timber along this stretch of river is large poplar with much spruce and balsam throughout. For a couple of miles above Camping Lake the banks are flat and covered with grass and willows for some distance back.

About two miles above Camping Lake a large stream called the Mattawa River enters from the northwest. At the junction of the English and Mattawa Rivers, the Hudson's Bay Company formerly had a trading post which has been abandoned for some years and the buildings have entirely disappeared.

The Mattawa River flows from Shallow Lake which is situated about four miles up stream from the junction. The Mattawa River widens out in places into small lake expansions and the banks generally speaking are of clay, the general characteristics as regards both land and timber being similar to the portion of the English River above described.

Shallow Lake is about ten miles long and four wide with a long narrow bay reaching off to the west from the southwest corner of the lake for about four miles. The main axis of the lake is almost due north and south. The shores on the west side are for most part high and rocky, and in many places well timbered with spruce, jack pine, poplar, balsam, birch, etc. There is, however, quite an extensive area of burnt country on the west side about two to four miles north of the outlet. The east side is much lower and flatter than the west side and there are more shallow and muddy bays with gently sloping clay shores. Generally speaking this side of the lake is well timbered with poplar, spruce, balsam, etc.

At the north end of Shallow Lake, Red Lake River enters. This river drains a fairly extensive system of lakes of which Red Lake is the largest. The Hudson's Bay Company have an outpost on Red Lake and it is in that vicinity that silver was reported to have been discovered recently, and where considerable prospecting is now being done. The survey was carried up Red Lake River as far as the first falls, which occurs only a short distance from the mouth of the river, where a spruce post marked "P. No. 40" was planted in a mound of stones on the west side of the river. The river here drops eight feet over a ledge of rock, but it is reported that in years of exceptionally high water this fall is flooded out.

At the northeast corner of Shallow Lake, there is a shallow bay full of weeds into which empties a wide, sluggish stream which flows from Little Shallow Lake about four miles distant. This stream flows in a long, sweeping bends through a clay country and the shores are low with grass and willow flats extending back to timber which consists mostly of poplar with spruce scattered throughout.

This river leaves the northwest corner of Little Shallow Lake which is over six miles long and nearly four miles wide at the widest place. The west side of Little Shallow Lake lies roughly parallel to the east side of Shallow Lake and much of the country between the two lakes does not appear to rise to a great elevation.

On the west side of Little Shallow Lake there is a series of iron-bearing

rocks showing exposures of magnetite banded with silica, and at one or two points some diamond drilling has been done. One of these drill holes was tied to transit station No. 739, which is about four miles south along the west shore from the outlet of the lake. Drill cores were also seen on the west shore near transit station No. 748.

The north, east and south shores of Little Shallow Lake are generally low and flat and in many cases no distinct shore line exists, and a foot or two difference in elevation of the water of the lake would submerge considerable areas that were comparatively dry at the time the survey was made.

About three-quarters of a mile east of the outlet of Little Shallow Lake a river about two chains wide at its mouth enters a shallow marshy bay. This river was traversed for a distance of over seven miles and a half where it divided into two branches. At this point the river is about half a chain wide and flows with a gentle current through clay banks about ten to twelve feet high. The country along the lower stretches of this river is very low with areas of grass and willows studded with clumps of poplar. In one or two places, however, high rock ridges are visible not far back. The banks of this river gradually get higher as one goes up stream. There are some areas of poplar and spruce of good size to be seen along the stream, but a considerable area has been burnt.

Trout Lake River enters Little Shallow Lake in a marshy bay on the east side. The shore line here is so indefinite and the bay so full of weeds and rushes that it is difficult to distinguish the mouth of the river until one is right into it. This is a much larger stream than the one just described, but the general characteristics of the banks as regards elevation, soil, and timber are about the same. The survey was carried up Trout Lake River, a distance of a little over ten miles to the first portage, where a substantial post marked "P. No. 50" was placed in a stone mound on the north side of the river.

The territory described so far in this report appears to be largely a clay country, and there is a considerable area of good agricultural land on both sides of the English River and Mattawa River and east of Shallow Lake and adjacent to Little Shallow Lake and the streams tributary to it. It is difficult to say how extensive this clay area is, but it is undoubtedly large enough to warrant further exploration.

A most important feature affecting a large portion of this whole area, however, is the fact that at times the English River and tributary waters are subject to very serious flooding. This appears to be caused by the fact that at Manitou Chute the English River is less than a chain wide and the gorge through which the river rushes is of such a character that the water is held back and rises many feet during the freshet season. On Shallow Lake and Little Shallow Lake the extreme high water mark as shown on the rocks along the shore is over twelve feet above the level of the lakes at the time this survey was made. Such a flood occurs only occasionally but when it does occur, owing to the low nature of much of the country, large areas are completely submerged. Had such a freshet or one anywhere near like it occurred during the season of 1922, it would have been impossible to have carried on this survey until it subsided.

In view of these facts any proposal for water power development which would necessitate the raising of the waters of Shallow and Little Shallow Lakes, such as a concentration of all the available fall on the English River between Lac Seul and Manitou Falls at Manitou Falls, would require careful examination in order to estimate the amount of damage that would be done by flooding.

From Manitou Falls the English River runs west for about three miles

to Lower Manitou Falls, where there is a drop of about 15 feet. In this stretch of river there is a drop of about a foot, as there are a couple of places where the current is very strong. The banks are mostly high and rocky, covered with a growth of poplar, spruce, jack pine, birch, etc., much of it of good quality. The north bank is lower than the south and there is one low area through which a small creek runs that extends back for a considerable distance.

Below Manitou Falls a short distance the river enters Barnston Lake and from here as far as Indian Lake where the survey was discontinued for the season, the general characteristics of the river and country adjacent are much the same. The English River here consists of a series of short river stretches connecting lake expansions, some of which are quite large. From the west end of Sandbar Lake, which is connected to Barnston Lake by a short river stretch on which there is a small rapid known as Barnston Rapids where there is a drop of a foot and a half, the general course of the river is south to southwest. The prevailing rock formation is Laurentian, the strike of which is east and west. The lakes occupy troughs in the granite and gneiss, the general direction of which follows the strike of the formation, the result being that the lakes generally speaking lie east and west and the river stretches connecting one lake with another cross the formation and run south and southwest. One result of this has been that the general travelled route along the river crosses the lakes instead of running lengthwise of them, and the lakes are much longer than would appear from observation along the travelled route. Oak Lake for instance is shown on the published maps of this section as being about seven or eight miles long, whereas its length is really nineteen miles.

Long Legged River flows into the north side of Wilcox Lake about a mile west of the English River. This river drains a system of lakes lying to the northwest. The survey was carried up this river a distance of nearly seven miles to the first falls where a post marked "P. No. 108" was planted in a substantial stone mound just west of the bottom of the falls. This river is two chains wide at the mouth with easy bends and sluggish current through a flat clay valley with higher ground some distance back. The banks near Wilcox Lake are low and flat with grass and willows for some distance back from the river. As one goes up stream the banks rise slightly and the quality of the timber improves, poplar, spruce and jack pine predominating.

A short distance below Wilcox Lake there occurs a series of three falls known as Oak Falls. The upper two of these are close together, and the lower one is about three-quarters of a mile down stream. Lower Oak Falls drops immediately into Oak Lake. The total fall in these three pitches combined is twenty-two and a half feet. Between Oak Lake and Maynard Lake there is a river stretch with a fall of about a foot. At the outlet of Maynard Lake there is a short, heavy rapids where the river takes a drop of nine feet into Tide Lake. The banks here are rocky and rise rapidly a short distance back from the river on either side so that it should be possible to concentrate all the fall from Manitou Falls to Maynard Falls at this point. This would give an available head of about fifty feet which would provide a power concentration at this point of considerable magnitude. The question of the amount and value of the land that would be flooded, however, would have to be carefully looked into, although the character of the country is such that I venture the opinion that the damage from flooding would not be nearly so great as would occur in the case of the power concentration previously mentioned as a possibility at Manitou Falls.

Below Maynard Falls the river flows through Tide Lake and Ball Lake and empties into Indian Lake where the survey was discontinued for the season.

There are no rapids in this section of the river and only a couple of places where there is even a strong current.

Wabigoon River enters the southeast bay of Ball Lake, and the survey was carried up this river as far as the first falls which occurs a couple of miles up stream. A post marked "P. No. 192" was planted in a mound of stones on the north side of Wabigoon River to mark the end of the survey in this direction.

The general characteristics of the shores of the river and lake expansions from Manitou Falls to Indian Lake are very much the same. The shores are generally rocky and either high at the bank or rising a short distance back from the river. In the upper stretches of this section occasional small areas of clay similar to that seen farther up stream are seen, but as one goes down stream these clay areas become less frequent. There are, however, many places where the banks are quite low, these places occurring mostly where the small streams enter the main river or its lake expansions and at the ends of the many deep bays which often terminate in fairly extensive marshes. Some of these areas are quite large and in case of power developments involving the raising of the water levels, contouring would be necessary. Such areas are roughly sketched on the plans which accompany this report, but no attempt was made to determine the exact extent of these areas.

The rock ridges on the whole are more prominent as one goes down stream. The roughest country seen during the season is in the neighbourhood of Ball Lake. Much of the Ball Lake country has been burnt over not many years ago, and the fact that the rocks are more exposed than where the country is covered with a heavy growth of timber, makes the hills stand out all the more prominently.

The prevailing timber is poplar, spruce, jack pine, birch and balsam, the relative abundance of each being in the order named as far as could be judged without detailed examination. The greater portion of the country as seen from the water has escaped the ravages of recent fires and there are some large areas where the timber is of fair size and good quality. The largest area burnt over in recent years occurs to the west of Tide and Ball Lakes.

There are a few scattered groves of red pine and occasionally a few white pine but they are not frequent and considering the country as a whole are not of great importance except for local building. At Oak Fall and on the portage at Maynard Falls a few stunted oak trees were seen, and near transit station No. 1595 on the large bay running east from Maynard Lake, a few wild plum trees were found bearing fruit of excellent quality.

This country should be much more popular with tourists than it appears to be. Hardly any travellers were met with during the summer and most of these were on business of some sort. There is no sign of occupation except a few trappers and Indians' cabins at intervals along the river. And yet there is here a country of great natural beauty, easy of access and where the conditions for canoe travelling cannot be excelled. Long water stretches with portages both few and short, good camping sites, and moose, deer and small game in great abundance. The fishing is excellent and above all there is the primeval forest dotted with lovely lakes in all their glorious beauty.

The English River forms part of one of the oldest routes into northwestern Ontario and has been used by some of our earliest explorers. On the north shore of Tide Lake, about half a mile northwest of Maynard Falls, members of the party discovered two old stone fireplaces marking the site of what had once been a fairly large building. One of these fireplaces is intact but the

other was broken into two parts by the roots of a tree over a foot in diameter which had grown up inside the site of the old building. The timber which has grown up since the building was destroyed is over one hundred years old. Some hardy pioneer of a forgotten generation had made this his headquarters and passed on leaving no record but the mute story of the ruined hearth. What a story those stones could tell! Incidentally the fine trees that have grown up on this old site are a living proof of how nature could solve the problem of reforesting our waste lands, provided we could eliminate the fires which are such a terrible menace to the timber resources of our country.

During the season Dr. E. L. Bruce of Queen's University made a geological survey of the area covered in this report, as well as the territory drained by the Red Lake River, and his report will be made to the Department of Mines so that it will not be necessary for me to touch on the geological features of the country. I might say that Dr. Bruce and his assistants made many trips inland from points on my survey and obtained much more information as to the country back from the water than I was able to do, as my time was entirely taken up with the survey operations.

During the season a little over 645 miles of actual shore line were traversed, including 232 islands. The plans of the survey consisting of a series of tracings showing all measurements taken in connection with the above, as well as notes as to the character of the country, timber, areas of possible flooding, etc., have all been forwarded to your department.

With this report are included a schedule of the islands, showing the numbers, nearest transit station, area and a short description of each island, together with my accounts in triplicate.

I have the honour to be, Sir,

Your obedient servant,

JAMES S. DOBIE,
Ontario Land Surveyor.

*The Honourable the Minister of Lands and Forests,
Toronto.*

Appendix No. 25

TRAVERSE OF WABIGOON LAKE AND OTHER WATERS,
DISTRICT OF KENORA.

PORT ARTHUR, ONT., July 29th, 1923.

Sir,—I have the honour to report that in accordance with your instructions, dated April 18th, 1922, I have made a traverse survey of Wabigoon Lake and other waters in the District of Kenora, and beg to submit the following report:

I commenced the survey at the iron post, marking the north boundary of Indian Reserve No. 27 at the point where it intersects Little Wabigoon Lake. The whole of Little Wabigoon Lake (lying south of the south boundary of Southworth township), Rock, Turtle and Moose Lakes, Grassy Bay and River, Minnehaha and Peak Lakes, were then traversed.

The country surrounding these lakes is generally rolling and rocky. It has suffered extensively from fire, no doubt due to mining operations there in the early days, and the timber now is practically all second growth of various sizes.

The shores of these lakes, with the possible exception of Minnehaha Lake, are, in my opinion, unsuitable for summer resort subdivision—where the shores are not all rock—that is, when they are composed of high clay banks, extending back, erosion has usually occurred, and in the lower shores, the land had been flooded back for a considerable distance, leaving dead standing timber, old logs, long grass, reeds, etc., in the water, so as to be almost impassable in a canoe, or by any other means. The details of this, however, are shown on the plan.

On the 7th day of June, I tied the traverse into the south boundary of Southworth township, east side of Little Wabigoon Lake, and proceeded the next day to big Wabigoon Lake. Here we continued the traverse, starting from the north boundary of Indian Reserve 27, previously mentioned, and continuing along the south shore until we tied into the south boundary of Van Horne township.

I, then, according to instructions of date 27th June, 1922, carried my traverse along the north shore of Big Wabigoon Lake, across the townships of Van Horne and Zealand, in order that the situation of the eroded clay banks should be properly designated.

On the 26th of June, I was instructed to continue my traverse covering Mile, Trap, Doré, Ingall and Ukik Lakes, all south of Contact Bay. I started out on this part of the trip on the first day of August. Mile and Trap Lakes are very small with high rocky shores. Here quite a few red and white pine were noticeable but were too scattered to be of any economic value.

Doré and Ingall Lakes are long and narrow with high, rocky shores. The surrounding country is very rough and rocky. In consequence, there are no areas fit for agriculture.

Ukik Lake is broken up into long, narrow, rock bays, which usually end up in low, marshy places.

There is a portage about a mile long from Trap Lake to Doré Lake ending up in a marsh or bay about a quarter of a mile long. This portage is very rarely used, except possibly as a winter trail.

There is a portage of about ten (10) chains on the outlet of Doré Lake, and three short portages on the outlet of Ukik Lake.

At the first is a falls nine (9) feet and the last three are falls having natural heads of eighteen (18), twelve (12), and twenty-four (24) feet respectively. There is a good site for a dam at the first falls but as the drainage area is so small, the resultant horsepower would be negligible.

On completion of this traverse work, I returned to Big Wabigoon Lake and subdivided Islands R.K. 185 and R.K. 196, and plans of same accompany this report, as instructed. There are several other islands which were large enough for subdivision but I considered that the nature of the shorelands was unsuitable for summer resort purposes, more especially on account of the erosion which has taken place, the sheer banks and the pollution of the water. There are one or two places on the north shore of Wabigoon Lake in the townships of Van Horne and Zealand which would make good summer resorts, but they are small and scattered.

All angles were measured with the transit and the distances obtained by stadia. The main stations were plotted day by day on cross section paper

on a scale of twenty (20) chains to the inch and by this means any error in the traverse was at once located and corrected. Frequent observations for meridian were taken and copies of them accompany this report.

At intervals of about a mile apart on the shore, prominent trees were blazed on the side next to the lake and marked thus, "1, 2, 3," etc. In like manner trees on islands were marked by the letters "R.K." followed by the number of the island. These points were tied into the nearest transit station and the bearing and distance recorded in the field notes. Posts were planted well above the high water mark, at points where we tied into known lines.

The details as to shore lands, trees marked, measurements and all posts planted are shown on plans accompanying this report.

All these lakes are well supplied with fish—pike and pickerel being most plentiful. Moose and Red Deer were also very plentiful. Beaver and muskrat were noticed at one or two points, but seem rather scarce.

Accompanying this report are three plans covering the whole traverse on a scale of twenty (20) chains to an inch; plans of subdivision of islands R.K. 185 and R.K. 196 on a scale of ten (10) chains to an inch; a table giving a short description of each island and its acreage; the field notes of the traverse and my accounts in triplicate; the accounts of the day work and the diary, I am sending under separate cover, all of which I trust that you will find correct.

I have the honour to be, Sir,

Your obedient servant,

ROY S. KIRKUP,

Ontario Land Surveyor.

*To the Honourable the Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 26

MERIDIAN AND BASE LINE, DISTRICT OF THUNDER BAY

PORT ARTHUR, ONT., October 31st, 1923.

Sir,—In accordance with your instructions, dated April 15th, 1923, we have surveyed a meridian and a base line in the District of Thunder Bay and have traversed a portion of the Albany River and beg to submit the following report:

The meridian was a continuation of that surveyed by K. G. Ross, O.L.S., in 1921, and the survey of it was commenced at the centre line of the right of way of the Canadian National Railway about one mile east of Allanwater Station. The mileage of this point was 60 miles plus 32.683 chains and the mileage of the northern terminus of the line, that is where it intersects the south shore of the Albany River, is now 121 miles plus 63.45 chains. A traverse of the Albany River was made from the northerly end of the meridian to connect the same with the easterly limit of that Indian Reserve on the south shore of Lake St. Joseph which was surveyed by J. S. Dobie, O.L.S., in 1912. From the 84th mile post in the meridian the base line was run west, in six mile chords of the parallel of latitude, to intersect the boundary line between the districts of Kenora and Thunder Bay. The length of this line was 35 miles plus 10.09 chains.

Iron posts were planted at the points indicated in your instructions and it was found necessary to erect nine witness monuments. One short iron post was planted and another should have been placed at the intersection of our base line with the district boundary, but our cement had become dampened and useless.

Observations were taken frequently and these will be found recorded in the field notes on the proper pages. Owing to smoke and cloudy weather we were not able to get an observation at the point of commencement until four days after we were in the field and about four miles of line had been completed.

TOPOGRAPHY

The land along the meridian slopes gradually to the north and few hills about fifty feet in height were found along it. In various places the rivers divide into two or three channels to reunite several miles farther down. The Flint River was the most erratic in this peculiarity. The section for many miles south of Lake St. Joseph and the Albany River is filled with a network of lakes and rivers so that it is possible to travel in almost any direction by waterways. Pine Lake was the largest lake seen which was not previously shown on any maps we have seen. The width of this lake east and west may be fifteen miles.

As the base line crosses the general run of the waterways it was found to be considerably rougher than the meridian. Lake Savant is the most important topographical feature along this line. The shore line of the lake is nearly all of a rocky nature and a considerable amount of the timber along the shores has been destroyed by forest fires but the islands, which are very numerous, are mostly green and some afford excellent camping places. One of the survey trial lines of the Grand Trunk Pacific Railway follows closely along the course of the base line but this appears to have been run merely as an exploration line.

SOIL

The agricultural possibilities are negligible. Along the Canadian National Railway and for thirty or more miles north of it the whole surface is covered with rounded boulders some being twenty feet in height. Towards the northerly end of the meridian areas of sandy soil of considerable extent occur but none seems to furnish any promise as farm lands.

ROCK FORMATION

The Department of Mines attached Mr. J. P. Johnson as geologist to our party and his report will cover in detail the various formations. The only favourable locations for prospecting noted were on the north end of Lake Savant where areas of quartz bearing schists may disclose gold and just south of the 120th mile post on the meridian where a considerable outcrop of magnetic ore was noticed.

TIMBER

A timber plan accompanies this report. This will show the areas of green timber and of burned. We would say that fifty per cent. of the territory covered this season is still green and of sufficient size for cutting now. Along the meridian from the point of commencement as far north as the 90th mile there is as good an average stand of spruce and jack pine, of suitable size for pulp, as we have seen at any place in this district. This area also extends west along the base line to about the 13th mile.

North of the 90th mile on the meridian and more particularly as the Albany river is approached, forest fires seem to be of an ever-recurring nature and as the country is very seldom traversed during the summer months by any person save the Indians from the reserves on Lake St. Joseph, it would seem that they are responsible. The waterways are not patrolled by forest rangers north of Lake Savant. One very serious fire was started some distance south of our base line and this burned for nearly two weeks during the latter part of June. It covered an area roughly estimated at forty miles in length and ten miles in width and destroyed a great amount of good timber.

On the first twenty-four miles of our meridian only a few balsam trees were noticed and there was nowhere any great number of this species. Cedar was also very scarce. Spruce and jack pine in about equal amounts would predominate for miles at a stretch. It is doubtful if the northern jack pine is as good timber as that farther south as the larger trees seem to have developed a great deal of rot.

We had expected to see large areas of open swamp and muskeg as we proceeded north but nearly all the swamps and lowlands were well timbered.

ROUTES, ETC.

Our first and second camps were on the Allanwater River. We then moved along the line to the portage going into Flint Lake just north of the 69th mile post. The Allanwater route was found to be properly mapped. We used Flint Lake and Flint River, with its various expansions, to the 80th mile. From here our supply men went east by way of the north branch of the Flint River and returned to the line at the lake in the 83rd and 84th mile. This route was rather a difficult one as it was found that between the first and second lakes east of the line there was a drop of more than one hundred feet, the river flowing rapidly between straight rocky banks. Better time would have been made by following the line. From the 84th to 100th mile there was no route found to parallel the line that was of any benefit to us. Explorations were made on each side of the line but any lakes found were too far distant to be of any benefit. There is a well used route coming into the lake in the 95th mile. Most of the travel over it seems to be from the east and most likely connects with the lake in the 104th mile. This lake is used as a camping ground for many families of Indians during the rice season.

Supplies for the northerly end of the meridian and for the base line were brought in from Bucke Station over the route shown on your maps going into the south end of Lake Savant. This route continues north to Lake St. Joseph and is used by the Hudson's Bay Company as its all year mail route and for light freight during the winter months. In all there is less than four miles of portage from the railway to Osnaburgh Post on Lake St. Joseph. This route is shown approximately on our plan. Eagle Lake and Pine Lake (local names) are possibly much larger bodies of water than we have shown them to be. There is a direct river route from Eagle Lake to the meridian. This crosses in the lake in the 100th mile. This was not used as it was found to be full of stones. It is used for light travel about as much as the lake route to the west of it. Our supplies were taken over the lake route to the 104th mile. From here to the end of the meridian the supply men remained with the party and we made all moves by canoe.

On the base line the route mapped by the Grand Trunk Pacific survey was used for transport and camping and was found correct. It will be noticed that Long Lake does not extend nearly as far north as shown on your maps.

On our return to the track we proceeded south from the end of the base line via Long, Cliff, Island, Lewis and Tawatinaw Lakes. From Lewis Lake to Tawatinaw Lake there are two routes but the one following the river is the easier.

WATER POWERS

Some of the falls and rapids on the Allanwater River will make good power developments. There are numerous falls and rapids on the other rivers but the flow is small in most of these.

GENERAL

Big game was comparatively scarce throughout the entire country and very little evidence of new beaver workings was seen, but this may be accounted for by the fact that we were travelling over well used routes most of the time.

Pickereel and pike are numerous in all the lakes, especially the former. Lake trout were found in Lake Savant. Speckled trout are said to be plentiful in some of the streams but none were caught.

Many of the northern lakes are filled with wild rice. This is gathered in large quantities by the local Indians.

We were unfortunate in having our entire camp outfit destroyed by fire on May 24th. The fire was evidently started through the carelessness of one of the members of our advance party. No damage was done to the surrounding forest save burning over about five acres of brush.

Accompanying this report you will find the usual notes, plans and accounts.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS & BENNER,
Ontario Land Surveyors.

*The Honourable the Minister of Lands and Forests,
Toronto.*

Appendix No. 27

SURVEY OF BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY

SAULT STE. MARIE, ONT., November 14th, 1923.

Sir,—I have the honour to submit the following report on certain base and meridian lines in the District of Thunder Bay, surveyed during the summer of 1923 under instructions from your department, dated April 15th, 1923.

I left Sault Ste. Marie for Bucke, Ontario, via A. C. & H. B. Ry. and N. T. Ry. on Monday, July 2nd, with a party of six. We stayed over night at Franz and were joined by four Indians from Chapleau. When we arrived at Bucke at ten o'clock on Wednesday morning I found my assistant, R. P. G. Laurence already there with Indians from Lac Seul, together with Mr. T. L. Gledhill, the geologist who was to accompany the party. Our provisions and canoes had already been transported to Sturgeon Lake by wagon under the kind supervision of Mr. Halvorsen, the Hudson's Bay Company manager, so that we were

able to camp on the lake that evening. On Thursday, July 5th, we moved down Sturgeon Lake and after cacheing the bulk of our supplies at the outlet, made two portages down the Sturgeon River and camped at a point from which we could run the first six miles of our line. We commenced cutting line on July 6th, finished on August the 28th, and arrived back in Sault Ste. Marie on September 3rd.

Our place of beginning was the 120th mile post on O.L.S. Niven's boundary between the Districts of Thunder Bay and Rainy River. We then ran east astronomically on six mile cords, a distance of approximately 78 miles to the westerly boundary of the Nipigon Forest Reserve. Our posts were numbered from 1 to 35 m. 33 c. 78 l., 1 to 24 m. and 1 to 17 m. 45 c. 75 l. respectively. From our 24 mile post which is 59 m. 33 c. 78 l. east of Niven's line, we ran north astronomically to the C. G. Ry., a distance of approximately 13 miles, 63 chains, 23 links and south astronomically a distance of 12 miles. This completed our work. These latter two lines were run north and south when we arrived at their starting point on our base line. Seventeen per cent. of the territory traversed by our line was water.

The party consisted of twenty-two in all, made up as follows:

- 1 Surveyor.
- 1 Assistant.
- 2 Chainmen.
- 1 Cook.
- 1 Cookee.
- 5 Axemen.
- 6 Packers on line.
- 4 Packers with the freighting canoes.
- 1 Geologist attached to party.

This distribution was maintained throughout the whole course of the survey.

SOIL

There are no areas in the country traversed suitable for agriculture. The covering is uniformly gravel, sand and boulders.

GEOLOGY

Inasmuch as a geologist was attached to the party, I did not pay particular attention to rock out-croppings. We did not encounter any valuable minerals.

TIMBER

With the exception of the country west of Sturgeon Lake, through which the first nine miles of our line passes, the entire area traversed was poorly timbered. Fires have run through it all at various times and only a pocket here and there has escaped. In some cases second growth timber has attained a diameter of eight inches, but the majority of it is still very small. The growth throughout is a mixed bush of spruce, balsam, poplar, banksian pine, and white birch.

WATER POWERS

There are no water powers worthy of note.

GAME

Moose and red deer are very plentiful. Fur-bearing animals are scarce on account of the proximity of the railway. There are great numbers of partidges and rabbits.

FISH

Pickerel, pike, whitefish, perch and suckers are found in abundance in all the lakes and rivers.

This is my report.

I have the honour to be, Sir,

Your obedient servant,

K. G. Ross,

Ontario Land Surveyor.

*To the Honourable the Minister of Lands and Forests,
Parliament Buildings, Toronto.*

Appendix No. 28

CERTAIN TOWNSHIP OUTLINES, DISTRICT OF COCHRANE

TORONTO, October 31st, 1923.

Sir,—We have the honour to submit the following report on the survey of certain township outlines in the District of Cochrane, performed under instructions from your department, dated 15th April, 1923.

Canoes and other equipment had been left the previous summer at Smooth Rock Falls, on the Mattagami River, so in June the party for the season's work was assembled at this point, preparatory to descending the river.

The party left on 15th June, and travelled down the river as far as O.L.S. Sutcliffe and Neelands' first base line of 1921. This line crosses the Mattagami River about a mile and a half below the mouth of the Kapuskasing River. From the crossing, the party packed the supplies and equipment six miles east over the base line to the northeast angle of the township of Clay, established by us the previous summer. Wet weather delayed the party on the trip, and it was 25th June before the line work was begun.

We commenced our line at our old post marking the northeast angle of the township of Clay, and from that point ran north nine miles between the townships of Sheldon and Howells. The north boundaries of the townships of Sheldon and Howells were run, respectively, east and west from the nine mile post. The former line was carried to Sutcliffe and Neelands' meridian run in 1921, and the latter is a meridian run by ourselves in 1911. We continued westward past this meridian between the townships of Harmon and Mowbray for about three miles and the end of the line was left there for the time being. The party then returned to the northeast angle of Howells, and extended our meridian north between the townships of Cockshutt and Traill to a base line run by Messrs. Sutcliffe and Neelands in 1921. The meridian was then continued north between the townships of Emerson and Hamlet.

The post planted in 1911 to mark the southerly extremity of the east boundary of the township of Hecla was picked up about sixteen chains west of our

line. The northeast angle of the township of Emerson was then established by running the north boundary line of the township east through this post, to intersect our meridian. The boundary line was then run westward to the meridian run by us in 1911. This completed the portion of our work east of the Mattagami River.

The party then proceeded up the river to the line between the townships of Harmon and Mowbray, left partly completed earlier in the season. It was extended west across the river to within convenient distance from the westerly corners of the townships. We then returned to the river, and continued up stream to the crossing of Messrs. Sutcliffe and Neelands' first base line, the point from which the party had, at the beginning of the season, travelled eastward. The party then packed westward along the base line to the northwest angle of the township of Clay. From the post marking the corner, the line was run west between the townships of Mowbray and Hopkins. Considerable difficulty was found in locating the north end of the meridian forming the west boundary of the township of Hopkins, as the corner was in an extensive brule now covered with a dense growth of alders, poplars and birch. The iron and wooden posts marked IX M were finally discovered four chains and forty-seven links south of our line. The base line was extended westward between the townships of Guilfoyle and Boyle, to intersect the west boundary of Guilfoyle established in 1906. The intersection lies about fifty chains west of the Opazatika River.

Returning to the northwest angle of the township of Hopkins, the meridian between the townships of Mowbray and Boyle was run, and the north boundary of the township of Mowbray completed to the intersection. The base line between the townships of Bradley and Boyle was run westward and as the west boundary of these townships has not yet been run the final post was planted at IX M. We then ran north between the townships of Bradley and Harmon and produced the north boundary of the township of Harmon west, eleven chains and seventeen links to an intersection, thus completing the summer's work. The last line was cut on 1st September. The return trail to the railway was made via the Mattagami and Ground Hog Rivers, and Fauquier was reached on the 3rd of September.

The first part of the season was favourable for survey work, but the weather became broken about the middle of August, causing much loss of time while running the last forty miles of the survey.

A two-chain steel band was used for measurements throughout the work. On broken ground, measurements were made with the aid of a clinometer and the horizontal distance was deduced from the vertical angle. Occasions for triangulation were few as the lines crossed few lakes, and the Mattagami River at the north boundary of the township of Mowbray was the only river crossing which could not be measured directly with the band. The Opazatika River was barely more than two chains wide at the point struck by our line, and no difficulty was found in making the measurement with the band. A poplar tree marked by O.L.S. Kenny on his traverse of the Opazatika River was located and tied in to our line.

Frequent observations of Polaris were taken throughout the survey and the notes of a number of these are embodied in the field notes.

The wooden posts used were made of cedar where available, but as a rule spruce or jack pine had to serve. All were at least six inches square and firmly planted. Iron posts were planted to mark each third mile and the township corners. A number of these, however, were placed as witness posts. Several

of the points to be marked fell in muskeg and soft ground. Where it was thought that the ground was not solid enough to form durable pits and mounds, a wooden post was planted at the true point and the iron post was planted as a witness post on the nearest solid ground with the required trench and mound. No short iron posts were used. In two cases, the regulation iron posts could not be sunk flush with the ground, and substantial stone cairns were built around them. Stone was not available for mounding posts at more than a few points. The posts so mounded are indicated on the notes.

On account of the extent of old brule crossed, suitable trees for use as bearing trees did not exist near a considerable number of the posts planted. In most cases, however, the notes show that two trees of some sort were marked.

GENERAL FEATURES

The larger part of the area traversed by our lines is drained by the Mattagami River and its tributary, the Pike River. The remainder, or western part, is drained by the Opazatika River.

Our meridian east of the Mattagami River followed somewhat closely the course of the Pike River. The Pike River originates in a number of small streams rising in the northern portion of the townships of Howells and Sheldon. These streams have dug ravines, sixty to seventy feet deep, in the sandy ground, and as a consequence the northern portion of these townships, especially near our meridian between them, is very broken. The streams themselves are clear and cold, and are well stocked with speckled trout.

In the next tier of townships, the river flows swiftly between clay or sand banks, twenty to forty-five feet high, through gently rolling or flat land. Approximately two miles below the south boundary of the township of Hamlet it enters a rocky gorge about two miles long, emerging at the level of the coastal plain where it is bounded by low lands, muskeg and swamp.

In general, the land along the meridian seems to fall to the north in two main steps; the first at about the north boundary of the townships of Howells and Sheldon, and the second opposite the gorge mentioned above.

The last four miles of the east boundary and the north boundary of the township of Emerson were run through country eighty-five per cent. swamp and muskeg.

West of the Mattagami River the axes of the ridges seemed to lie approximately east and west. Our line along the south limits of the townships of Boyle and Mowbray followed one ridge, and the line along the north boundary of these townships followed another. Most of the valley between these ridges drains to the Opazatika.

SOIL

The soil over the larger part of the area surveyed is a light sandy loam or straight sand. Perhaps twenty per cent. of the soil examined was clay. Probably, however, the proportion of clay is greater than would appear from such examination as we were able to make. The lower lands were deeply covered with moss, and the soil could not be so readily identified. The best soil seen from an agricultural standpoint was along the south boundaries of the townships of Boyle and Mowbray.

TIMBER

The major portion of the land traversed by our lines was swept by fire twenty to twenty-five years ago, and a strip about six miles in length along our east meridian was burnt over two years ago. This latter burn seems to extend for a considerable distance toward the Abitibi River on the east, and

for six or seven miles to the west. The area burnt by these fires extends from beyond our south boundary. The fires were only stopped on the north by the extensive muskegs in the northern parts of the townships of Emerson and Hamlet.

East of the Mattagami River practically the only timber left is in the spruce swamps comprising not more than twenty per cent. of the area. Some of this is of a size suitable for pulpwood. The second growth is largely birch and poplar or alders and willow. An exception to this is on some of the sand hills in the northern part of the townships of Howells and Sheldon. On them a dense growth of young jack pine has sprung up.

West of the Mattagami River, the destruction is not so complete. Several areas of a few square miles have escaped. Along the south boundary of the township of Mowbray in particular, we saw some good pulpwood. In the southerly part of the township of Harmon there is a considerable area of green bush. This is a mixed stand of jack pine, spruce, poplar and birch. The second growth west of the Mattagami River seems of a more valuable quality than that east of the river.

ROCK

Little rock was seen on the lines of survey. The rock observed was granite or granite gneiss. Rock is exposed on the banks of the Mattagami River in many places, and in the gorge of the Pike River mentioned above. No economic minerals were identified.

WATER POWER

Traverses of the Mattagami and Opazatika Rivers have been obtained by your department. A causal inspection is sufficient to show that large development of power is possible on the Mattagami River and to a lesser extent on the Opazatika. The surveys of the rivers will, of course, indicate the power possibilities better than any estimate by us. The Pike River is too small and distant to offer any inducement for the immediate development of water power.

CANOE ROUTES

We reached the scene of our work via the Mattagami River, from Smooth Rock Falls, but after the first trip, utilized the Ground Hog River instead above the junction of the two rivers. This is the shorter and better route. The route via the Ground Hog River and the Mattagami River, is considered to be the best one from Moose Factory to the railway. The portages are in excellent condition. The Opazatika is said to be good between our crossing and the railway and below that to be difficult except at the higher stages of water. The Pike River is not travelled.

FISH AND GAME

Moose were plentiful, especially in the area west of the Mattagami River. Partridge and rabbits were seen more often than usual. Beaver work was fairly common. The head waters of the Pike River are well stocked with speckled trout and the fishermen of the party made some good catches of pike and pickerel in the Mattagami River.

We have the honour to be, Sir,

Your obedient servants,

SPEIGHT & VAN NOSTRAND,

Ontario Land Surveyors.

*The Honourable Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 29

CERTAIN TOWNSHIP OUTLINES, DISTRICT OF SUDBURY

PETERBOROUGH, ONT., October 31st, 1923.

Sir,—I beg to report that, agreeable with instructions from your department, dated April 15th, 1923, to survey certain township outlines in the district of Sudbury, that I have completed this work and beg to submit herewith my plans, field notes and report, all of which I trust will be found complete and satisfactory to your department.

I commenced the survey at an iron post planted by myself in 1916 at a point on the north boundary of the township of Hall, two miles west of the northeast angle of that township. After getting an observation for azimuth at this point, I ran four miles west. I then moved my camp to Turnbull Creek on the Canadian Pacific Railway and from the iron post planted by Ontario Land Surveyor Stewart in 1892 to mark the line between township No. 16 and Cavell, I ran south to intersect the line between the townships of Cavell and Hall. I continued this line south to the north boundary of the township of Hubbard. I then returned to the northwest angle of the township of Hall and from this point I ran west along the north boundary of the township of Faust to intersect the meridian line surveyed by Ontario Land Surveyor Niven in 1902. Having completed this work I moved west along the north boundary of township 9 Z, recently surveyed by Ontario Land Surveyor Mooney, to a point two miles, sixty-eight chains and thirty-seven links west of the northeast angle of that township, and from this point I continued west making Township 9 Z six miles wide on its northern extremity. From this point, I ran south to intersect the north boundary of township 8 A and north 6 miles. I then returned to the northwest angle of township 9 Z and ran west six miles along the north boundary of township 9 A from which point I ran south to intersect the north boundary of township 8 B and north six miles. I then returned to the northwest angle of township 9 A from which point I ran west along the north boundary of township 9 B. I then ran south to intersect the north boundary of township 8 C and north to intersect a line run this season by Ontario Land Surveyors McAuslan, Anderson and Moore. I then returned to the northwest angle of township 9 B and ran west six miles along the north boundary of township 9 C, from which point I ran north to again intersect the line surveyed by Ontario Land Surveyors McAuslan, Anderson and Moore.

Having finished this part of the work I moved to Woman River Station on the Canadian Pacific Railway and from the iron post planted by Ontario Land Surveyor Stewart in 1892 to mark the northeast angle of township No. 19, I ran west 12 miles connecting with my own work and that of McAuslan, Anderson and Moore. Wooden posts made of the most durable wood in the locality and at least six inches square and three feet high were planted at the end of every mile, excepting where that point fell in a lake or river, in which case the post was planted on the line at the nearest shore. At the end of every third mile the iron posts supplied by your Department were planted and pits and mounds made according to instructions.

All the country covered by these eleven townships is very rough and rocky and almost completely devoid of agricultural land, nor does there appear on the surface any indications of the existence of economic minerals. Four or

five of these townships, however, contain an immense quantity of valuable timber, the location of which will be seen on the timber plan. The whole country is traversed by numerous creeks and lakes containing considerable good fish, particularly pike and lake trout. Moose and red deer are also very plentiful in this locality. In the lowlands between the hills are found the usual swampy tracts covered with spruce, dead and decaying tamarac with alder and willow underbrush and considerable windfall, the average size of this timber runs from two to ten inches.

I have the honour to be, Sir,

Your obedient servant,

J. W. FITZGERALD,
Ontario Land Surveyor.

*The Honourable Minister of Lands and Forests,
Toronto.*

Appendix No. 30

SURVEY OF TOWNSHIP OF MONGOWIN, DISTRICT OF SUDBURY

LITTLE CURRENT, ONT., November 19th, 1923.

Sir,—I have the honour to submit to you the following report on the survey of the township of Mongowin, in the district of Sudbury, performed under instructions from your department, dated Toronto, June 1st, 1923.

The manner of the survey was carried on as nearly as practicable to conform with the instructions.

Several iron posts were planted at the intersections of survey lines, as recorded in the field notes. In the Lacleche Mountains, in the southern portion of the township, on account of there being very little soil, none were planted.

Where practicable at all the posts were well mounded up with stones, most of the mounds, or cairns, are from three to five feet at the base, and where there was a depth of soil a hole was dug about two feet deep, and the post set up firmly in it. Nearly all the posts are of cedar.

In the appendix to the field notes will be found the notes of my survey of the outlines of the Wallace Mine locations, including Block A, which I made in January, 1900, for the late Thomas Frood. All possible information regarding the original survey of the locations, and a letter of explanation, were obtained from the then Director of Surveys, Mr. Kirkpatrick, before proceeding with the survey.

The evidences which I found on the ground of the west limit of the Whitefish River Indian Reserve are rather unsatisfactory. With the exception of its intersection with Lake Huron, and a short distance from there, and the intersection at West River, which latter one I found in 1920, also a cairn on the north shore of Raven Lake, which is said to be the northwest angle of the Reserve, the blazes which I have seen seem to be only a reblazing in a haphazard way, and made probably 20 to 30 years ago.

On page three of the instructions of above date, reference is made to an apparent discrepancy between O.L.S. Bolger's survey of the first concession west of Wallace Mine, at the shore where it connects with O.L.S. Alex. Vidal's survey of Wallace Mine, lot 5, I did not find any discrepancy there, nor elsewhere.

The soil throughout the township is nearly all a stiff clay. There is some sandy and sandy loam on the south side of the Lacloche Mountains. In some places there are tracts of soil unbroken by rock, probably from 10 to 15 acres in extent, but generally it occurs in small patches between the rocky ridges. A settler in lot 11, concession 6, has, however, cleared about 35 acres which seems very little broken by rock. Probably from 20 to 30 per cent. at least of concessions 1, 3, 4, 5, 6, is tillable. Concession 2 is very much broken by the Lacloche Mountains.

The rock formation is almost entirely Huronian. North of Raven Lake it is mostly clay slate and various schists. In the central portion there are also occasional small ridges of diorite, or diabase. On lots 7 and 11, concession 3, there are prospects of mineral, somewhat developed. The Lacloche Mountains, extending across the southern portion, are mainly quartzite. Where they extend easterly into the Whitefish Indian Reserve, there occurs along the Algoma Eastern Railway a large hill of chert.

As shown in colour on the timber map north of Raven Lake, concessions 5 and 6, it is nearly all old brule, with an occasional small patch of scattered timber. In concessions 3, 4 and part of 5, there is considerable fair sized balsam, spruce, cedar, poplar, white and yellow birch, hemlock, jack pine, maple, tamarac, ash and some black spruce. A good deal of it is merchantable. There is also considerable large red and white pine in this area. In concessions 1 and 2 there is the same timber, also some scrub red oak and ironwood. The merchantable pine has been pretty well cut out of this area. There is a tract of old brule, with little good timber, lying between Fox Lake and Block A.

West River, between Raven Lake and Marsh Lake, on account of being dammed up is mostly sluggish, and is from 20 to 40 feet wide. Below Marsh Lake it is a succession of narrow gorges for some distance, and in this section some power might be developed on it.

I have the honour to be, Sir,
Your obedient servant,

T. J. PATTEN,
Ontario Land Surveyor.

*The Honourable Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 31

TRAVERSE OF SHORE LINE OF LAKES MINNIETAKIE AND BIG SANDY, DISTRICT OF KENORA

PORT ARTHUR, ONT., December 14th, 1923.

Sir,—I have the honour to report that in accordance with your instructions, dated April 10th, 1923, I have made a traverse of the islands and shore lines of Lakes Minnietakie and Big Sandy, both in the District of Kenora, and beg to submit the following report:

I commenced the survey at the intersection of the southerly boundary of Drayton township and the westerly shore of Lake Minnietakie and continued southwesterly along the shore of said lake to the mouth of Pickerel Narrows.

PICKEREL NARROWS

This bay runs in a general direction southwest, a distance of twenty miles and varies in width from five to eighty chains. The shores and banks are, generally speaking, rock, rough and very steep in places with high rocky hills surrounding it, burnt bare in places by fire which has swept all of the area at one time or another.

Two rivers are tributary to this bay (which is by far the longest in the whole lake). The one from the southwest about a chain in width empties out of Big Sandy Lake; this is still water with the exception of its upper reaches near Big Sandy, where there are some small rapids and the remains of an old dam, which was used in the early days. The other one enters from the southeast and is twenty-five feet wide and is remarkable for the fact that it falls twenty-eight feet at its mouth, thus showing up the nature of the shore line at this point.

I continued the traverse, doing both sides of the Narrows at once, to Blackfish Portage, which is the end of the Narrows and portage to Big Sandy Lake. I tied into Niven's meridian line en route, and was very lucky to find the post as the country had been well burnt over and there was no semblance of a line. I then traversed the portage and Big Sandy Lake continuing the Portage to Dinorwic where I arrived on the 29th of June.

BIG SANDY LAKE

This lake, as its name implies, is a big sandy lake. There are many sandy beaches but the rock and gravel beaches are by far in the majority. The westerly shore appears to be very rocky on the points and shallow, making it difficult to land a canoe or boat. In fact I found this difficulty throughout the whole lake. It seems very shallow and can churn up and become a turmoil in the shortest time of any lake I know.

The beaches, mostly rock and boulders, have been piled up, both on main shore and islands for a distance of twenty links to three chains by the action of the water or ice in the old days when the water was raised by dam on the outlet of this lake. The difference from the present to the old water level is approximately nine feet. The bays with the sandy beaches would be suitable for summer resort lots but the others are eliminated on account of the shallowness, rocks and reefs.

PORTAGE TO DINORWIC

This portage, approximately nine miles long, varies in width from just a trail to one chain and even wider in some places. The portion near the lake is rather rough, rocky and high, but it drops down gradually to Dinorwic. The latter part of the road is mostly clay and in dry weather one could not wish for a better road.

This leg of trip was then complete and we transported men and what supplies we had left back to the mouth of Pickerel Narrows where I had cached the bulk of the supplies. I then continued traverse around the various bays of Minnietakie Lake till we reached Twin Lake on the 25th of July.

TWIN LAKE

This is more in the nature of a long narrow bay from Minnietakie Lake than a separate lake as its name applies. The strip of water that connects

it with Minnetakie is in the nature of a river but one cannot detect a current. It is very marshy and full of wild rice and reeds and it was only with a great deal of difficulty that we were enabled to push our canoe through. The southern portion of this lake is surrounded by high rocky hills covered mostly by Banksian pine, poplar and white birch. The bays are long and narrow ending up in low marshy places.

I then continued into the southeastern bay into which the English River empties, tying into the English River power reserve line as we proceeded. This is, in my opinion, the best part of the main shore of Minnetakie Lakes for summer resort lots. The big rounding bays are mostly of a sandy nature and the country lends itself generally to this purpose. In fact there are already several locations laid out; the big majority, however, are on islands.

I connected up with the south boundary of Drayton township, where it intersects the easterly shore of Minnetakie Lake, on the 7th of August. I had no difficulty finding the post, although the country has all been burnt over.

I then traversed what remained of the islands. This took me considerably longer than I anticipated, when I wrote you on the 4th of August, on account of adverse weather conditions, but we finally did complete them and returned to Sioux Lookout, entraining for Port Arthur on the 16th of August.

There are two hundred and thirty-seven islands in both lakes ranging from small rocks to islands six and seven miles in perimeter, also numerous reefs which are shown on the accompanying plan. The acreages and description of islands is appended hereto.

At intervals of about a mile apart on the shore, prominent trees were blazed on the side next to the lake and marked thus: "1, 2, 3, etc." In like manner trees on islands were marked by the letters "R", "K", followed by the number of the island. These points were tied into the nearest transit station and the bearing and distance recorded in the field notes. They are also recorded on the accompanying plan in red. Whenever we located a suitable spot, a short bronze metal post was cemented into the rock with Portland cement and a wooden post was planted alongside in a mound of stones as a reference point, both posts being marked similarly. These posts are shown circled in red on the plan which accompanies the report. Posts were planted well above the high water mark at points where I tied into known lines.

All the details as to shore lands, trees marked, measurements, bearings and posts planted are shown on the plan.

A Watt transit and D.L.S. stadia rod were used throughout with the exception of two occasions, when I had the misfortune to fall into the lake and wash out my cross hairs, when I used a Davis & Son six-inch transit with good results. With the latter transit, however, I had to use a constant of .9434 for every chain read on the rod. The main stations were plotted by latitudes and departures every day on the cross section paper on a scale of twenty chains to the inch so that any error which might creep in was at once located and corrected. Frequent observations for meridian were taken, and copies of them accompany this report.

GAME

Both these lakes seems to be well supplied with pike and pickerel, but the fishermen met with did not seem to have very good luck. No trout were seen at any time throughout this trip. The red deer and moose are the most plentiful of any part of the country that I have yet been. Beaver and muskrat are present in small numbers.

WATER POWER

No water power was encountered of any commercial value except perhaps the English River Falls which has already been investigated.

In conclusion I would suggest that almost any of the islands in the north-easterly section of Lake Minnetakie, the southeasterly bay and the lake shore on the southern part of Drayton township, adjacent to the easterly boundary of the said township, have portions which would be suitable for summer resort lots. The water is pure and various springs are spotted here and there, both on islands and main shore, which makes for better camp conditions. The only adverse feature being that the lake is fairly shallow and there are rocks and reefs lying just underneath its surface which makes it bad for navigation.

Accompanying this report there are two plans covering the traverse on tracing linen on a scale of twenty chains to the inch, a table giving a short description of each island and the acreage, copies of observations and my accounts in triplicate, all of which I trust that you will find correct.

I have the honour to be, Sir,

Your obedient servant,

ROY S. KIRKUP,
Ontario Land Surveyor.

*The Honourable Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 32READJUSTMENT SURVEY IN THE TOWNSHIP OF BLOUNT, DISTRICT OF
TIMISKAMING

NORTH BAY, ONT., November 27th, 1923.

Sir,—I have the honour to submit the following report on the readjustment of survey in the township of Blount, District of Timiskaming, performed by me under instructions from your department, dated October 16th, 1923.

I left North Bay on October 21st, 1923, with a party of five men and travelled to Cochrane, remaining in Cochrane over night. The following morning travelled by motor truck with supplies to where the Temiskaming and Northern Ontario Railway crosses the south boundary of the township of Blount.

The posts planted to mark the front and rear of lots one to thirty-six concessions A and B of survey made by me in October, 1922, were removed and bearing trees for same obliterated. The iron posts planted last year at one chain and seventy-five links in perpendicular width measured westerly from the centre line of the Temiskaming and Northern Ontario Railway on the north limit of the road allowance of concession I and on the southerly limit of road allowance at concessions II, IV, VI, VIII, X and XII remain but the marking on same have been obliterated.

The blazes on the following lines were scored by making three axe marks on the blaze facing the line:—

1. Line west astronomically across lot 21, concession 1, at 59.49 chains north of southerly limit of concession 1.

2. Line across lot 16, concession III, at 59.59 chains north of southerly limit of concession III.

3. Line across lot 17, concession V, at 59.49 chains north of southerly limit of concession V.

4. Line across lot 23, concession V, at 59.49 chains north of southerly limit of concession V.

5. Line across lot 19, concession VII at 59.49 chains north of southerly limit of concession VII.

6. Line across lot 25, concession VII at 59.49 chains north of southerly limit of concession VII.

Posts were planted and marked in the prescribed manner to define the fronts of the following lots which were removed last year.

Lost 16 to 21 including concession I.

Lots 15 to 21 " " II and III.

Lots 16 to 22 " " IV and V.

Lots 17 to 24 " " VI and VII.

Lots 20 to 25 " " VIII and IX.

Lots 20 to 25 " " X and XI.

Lots 20 to 25 " " XII.

In addition to the list of lots that have been settled, sent in with my report last year, there has been the following:

A Mr. Wilson of Cochrane has built a frame house, 16 x 20, on old lot 9, concession B, which is at the rear of the readjustment survey of lot 19, concession III. This makes two settlers on lot 19, concession III, as a Mr. Dominic Noël has built on this lot last year.

There is a small clearing at the southeast corner of lot 24, concession XI.

Near the southeast angle of lot 22, concession XI, there is a small log cabin.

At the rear of lots 21 and 22, concession XII, men were engaged in cutting timber for the erection of camps for the Major Moffatt settlement.

Accompanying this report are field notes and accounts, all of which I trust will be found complete and satisfactory.

I have the honour to be, Sir,

Your obedient servant,

G. P. ANGUS,

Ontario Land Surveyor.

*The Honourable Minister Lands and Forests,
Toronto, Ontario.*

Appendix No. 33

TRAVERSE OF MOOSE RIVER, DISTRICT OF COCHRANE

SAULT STE. MARIE, ONT., December 7th, 1923.

Sir,—Under instructions from you, dated April 5th, 1923, to survey the Moose River from the confluence of the Mattagami and Missinabi Rivers down stream to Moose Factory and beyond to the mouth of the river, I commenced organizing for this work May 5th, 1923, and proceeded to Clute via Cochrane. At Clute I bought supplies, etc., and had it teamed to the landing on Frederick House River and left May 13th, en route for Moose River via Frederick House and Abitibi Rivers.

The trip to Moose River passed off without mishap of any kind. It took considerable time to make the trip. Being heavily loaded I could not take the full loads on some parts of the river.

Having barely enough supplies when I landed at Moose River to make the survey, I found it necessary to work from "fly-camps", leaving the cook and one man at the main camp, and about every three or four days, he supplying us with bread, etc. The "fly-camp" was picked up each morning, carried in two canoes while surveying, and pitched again towards evening. I find this to be the most effective method of surveying a large river or lake.

I finished the survey with quite enough supplies to make the trip out, which took more time than usual, on account of the water in the rivers being very low.

The Moose River traverses through banks of clay from ten to thirty feet high and is swift and rapid, particularly from its source to the French River.

During the survey of the upper part of the river, rapids were not noticeable at high water stage, but the current is fast and heavy, so much so, that lining or poling up stream, with even light loads, is the only way good progress can be made.

The river has a quick "run-off" and with the exception of a few places is shallow for the greater part of the width at low water stages.

The river bed from its source to within seven miles of Moose Factory, is principally limestone, or limestone covered with clay, gravel and boulders. Great stretches of limestone and gravel bars will be found, reaching as far out as ten chains from either bank of the river throughout its entire length.

The islands of the river are generally high and made up principally of clay soil suitable for agricultural purposes, and sparsely timbered with poplar and birch, some balsam and spruce.

The up stream end of the majority of islands are high with almost sheer cut banks having been annually torn away by spring floods carrying high floats of ice at a great speed, and at the same time depositing high boulders weighing almost a ton. I have seen, when the river got low, long wide gravel shoals show up, the well defined tract of these boulders made during spring floods, which gives the instance of how turbulent these great rivers are during high water period.

The Moose River forms a basin for three of the largest rivers in this section of the north, viz: the Abitibi, Missinabi and the Mattagami, besides numerous other smaller rivers and creeks, as the French, Cheepasch and Kwaataboahagan rivers.

The Moose River at its mouth is about three miles wide, and at low tide is shallow in many places. The natives of this district have noticed quite a change, in the last twenty years, in the way of new islands and water channels being formed, due to the tons of silt and debris brought down the river during flood season, and again being shoved back by tides, which affect the river upstream to the mouth of the French. A study of the plan in connection with this report, will give more plainly the way in which this section of the river is changing. For instance, Maidman's Island is known to have been made up in the manner already stated. It is also apparent the connection Butler's Island is making with Maidman's Island.

Most of the island area in the vicinity is high enough to not be affected by spring floods or high tides and the soil, a clay loam, is excellent for agricultural purposes.

The Hudson Bay Company's post on Factory Island is a good example of the farming possibilities existing in this district. This may also be said of the country through which this great river traverses. There are a few cleared pieces of land in this vicinity yielding wonderful crops of root vegetables, hay, oats, barley and berries. Although the summer seasons are short the growth is very rapid.

The timber along the Moose River consists chiefly of poplar, spruce, balsam and birch, and from a pulp standpoint I would consider it only fair.

I have the honour to be, Sir,

Your obedient servant,

C. R. KENNY,
Ontario Land Surveyor.

*The Honourable Minister of Lands and Forests,
Toronto, Ontario.*



Among islands, Moose River.



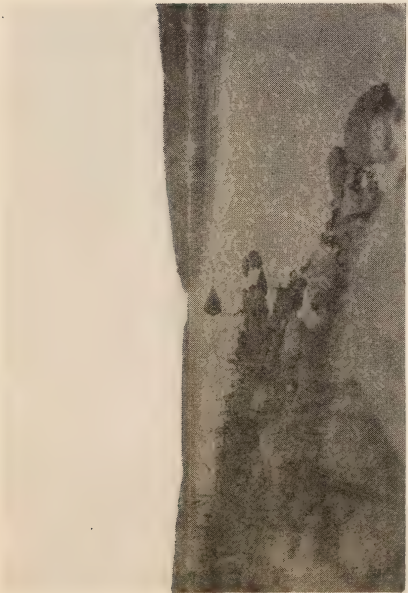
Camp over night en route to Moose Factory.



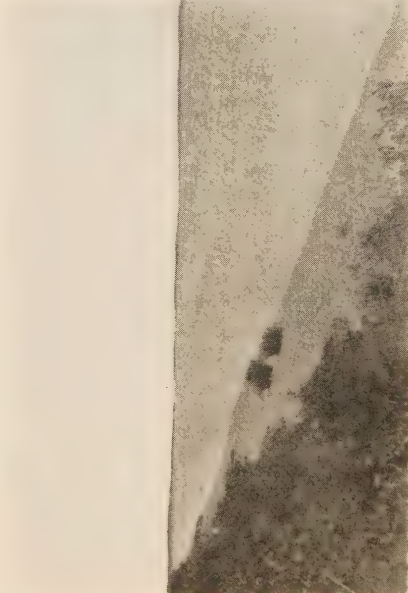
Timiskaming and Northern Ontario Railway, crossing Abitibi River above Island Portage.



Island beach near Moose Factory at low tide.



Shore line, Moose River
Island "E," on right.



Shore line at low tide near Moose Factory.



Husky pup.



French-Canadian, Indian wife and family.



Indians, Hudson's Bay Company's Post.



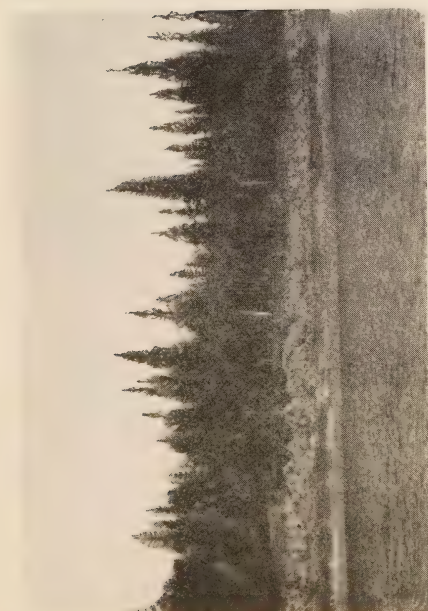
Some Indians—Revillion Bros.' Post.



Indians, Hudson's Bay Company's Post.



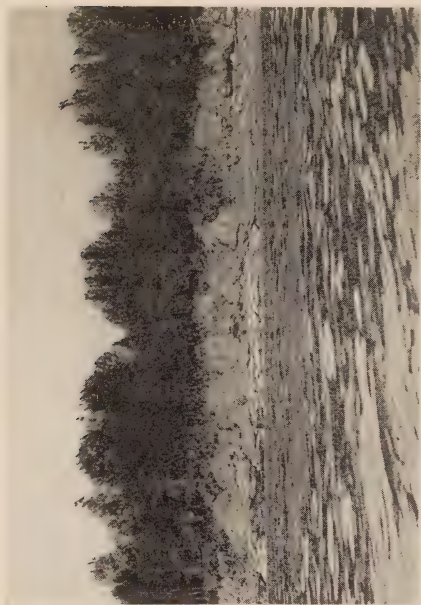
Indian children attending the Mission, Moose Factory.



Gypsum beds—Moose River.



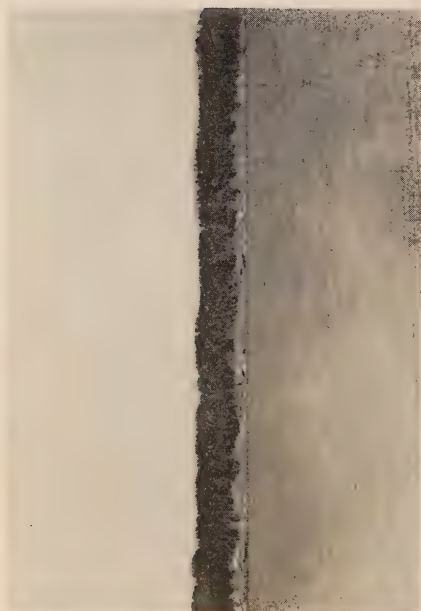
Gypsum beds—Moose River.



Gypsum beds—Moose River.



Gypsum beds—Moose River.



Gypsum beds—Moose River.



Island beach at low tide, Moose River.



English Church, Moose Factory.



Indian Mission, Moose Factory.



Potato crop, Moose Factory—Island M1.



Garden at Indian Mission on Factory Island.



Garden on Factory Island.



Sawmill—Hudson's Bay Company Post.



Revillion Bros.—Fur Trading Company.



Revillion Bros.



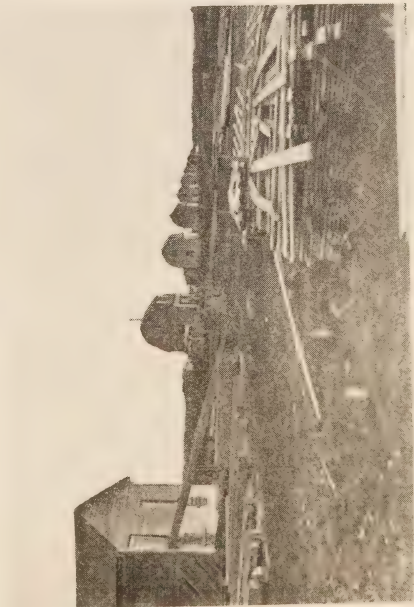
Revillion Bros.



Revillion Bros.



Sawmill—Revillion Bros.



Sawmill, Revillion Bros.' Fur Trading Company.

Appendix No. 34

TIMBER LIMIT LINES, TIMAGAMI FOREST RESERVE

NEW LISKEARD, ONT., November 3rd, 1923.

Sir,—In compliance with instructions bearing date of August 30th, to survey two limit lines, one in Kittson township and the other east of Anima Nipissing Lake, we proceeded to said work, October 3rd, commencing work at the two mile post on the north boundary of Kittson. Weather conditions prevented our getting an observation at this point so the theoretical angle was turned off and the line surveyed south astronomically to the northwesterly shore of Trout Lake, said point being the southerly end of said line.

Posts of durable material were planted at each mile, mounded with stones and properly referenced by bearing trees and blazed on two sides in the direction in which the line was run.

After completing this work we proceeded to Anima Nipissing Lake, camped where the second limit line was supposed to intersect the east boundary of Kittson and walked east to the starting point and ran west astronomically intersecting said east boundary 1.72 chains north of the two-mile post and making an intersection angle of $90^{\circ} 02'$ measured from north to east. Durable posts were planted every mile, mounded with stones and referenced the same as the first line.

It was impossible to obtain experienced axemen at New Liskeard so we had to get them at North Bay, consequently the transportation expenses.

Accompanying this report please find attached field notes and chainers's affidavits and under separate cover pay list and account in full.

I have the honour to be, Sir,

Your obedient servants,

SUTCLIFFE & NEELANDS,
Ontario Land Surveyors.

*The Honourable Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 35

ALGONQUIN PROVINCIAL PARK

ALGONQUIN PARK, ONT., November 21st, 1923.

HONOURABLE SIR,—I beg to submit my annual report for the fiscal year ending October 31st, 1923.

Our staff is composed of a superintendent, two chief rangers, thirty-two park rangers and a housekeeper. One ranger, J. P. Foran, died during the year, and four new rangers were added to the Park Staff.

IMPROVEMENTS

Five new rangers' houses were built. Eight of the old houses had new roofing put on them, two houses had new foundations placed under them, new windows, etc., making them almost as good as new. A number of the

houses were re-chinked and plastered and other small repairs made. Nine new stoves were placed in rangers' houses, required to replace old stoves that were worn or rusted out, and several cooking outfits were replaced. New blankets were distributed to any of the rangers on request. Portages and roads were much improved. Several new portages were cut out. The credit for the roads and trails is due to the Forestry Branch, assisted when possible by members of our staff. Telephones were placed in the Eagle Lake and Sligo Ranger Houses and attached to the Forestry Branch lines. The telephone situation is very much improved, returns to the Department from this source being \$329.88.

GAME

Game has increased in the Park, especially among the fur-bearing animals, such as beaver, otter, mink, marten and fisher. Deer are not so plentiful, disease among them during the winter of 1922-23 and the increased number of wolves, no doubt, accounting for same.

There was the usual amount of illegal trapping in the Park; our rangers succeeding in bringing in six of the offenders. Fines were imposed amounting to \$357.45, which was forwarded to the Provincial Treasurer through the Department. Nine different trappers' outfits were captured or destroyed. 109 traps were brought in to headquarters and possibly as many more destroyed. Nine rifles were also captured, all in poor condition, and a quantity of raw furs was taken and forwarded to the Department for disposal.

FISH

We placed 1,000,000 salmon trout fry in fourteen different lakes along the railroad in the southwest part of the Park.

Fishing was very good throughout the Park waters, many sportsmen going to the northern parts of the Park reporting excellent results. The revenue from the sale of Fishing Licenses amounted to \$2,579.00 and \$101.00 was collected from the sale of Guides' Licenses.

LOTS AND LEASES

A few applications were received for parcels of land upon which to build summer cottages. Only two cottages were built. A number of the summer residents built small additions to their cottages and a great many of the cottages were painted. The revenue collected from rents amounted to \$869.59, which was forwarded to the Department.

Other revenue collected was the sale of firewood amounting to \$14.25. Summer residents were given the down timber and floatwood in the lakes, free of charge, for firewood, on condition that all debris should be cleaned up. This has resulted in considerable cleaning up along the lake shores and the removal of much danger to canoeists from floating driftwood. Rental of the Park team brought in \$195.50. \$72.00 was also paid direct to the Department by the Canadian National Railway for work done by the Park team while the pumping station was being built.

The number of fires throughout the Park was less than usual. Only two fires amounted to anything. One in Hunter Township started by lightning, and the burning in an old slash left by the big fire of 1914 required a lot of hard work to keep it from running into the green timber. The cleaning up of this slash wood is a real benefit, having removed a dangerous menace to life and further destruction of forest in the Park. In the township of Boyle a bad fire

raged for a couple of days, during which time high winds prevailed. The Forestry Branch, assisted by a number of the Park staff, got this fire under control. I may say that the increased efficiency of the Forestry Branch is largely responsible for the greater number of the fires being put out before any great damage was done. Tourists and members of the different Boys' Camps in the Park put out several small fires while travelling through the Park. Cigarettes are, possibly, the greatest menace to our forests and if visitors could be persuaded to use a pipe with a cover, the number of fires would be reduced. Very few fires result from careless campers as this class is fast disappearing. There is always the danger of fires along the railroad and I would recommend that a small gasoline engine and hose be purchased for the Park staff at Algonquin Park Headquarters, also a small gasoline car so that it could be sent to any point in a hurry and in this way greatly assist in keeping fires under control and extinguishing them while they are still small.

There is one girls' camp (Northway) in the Park. This is a select camp and only a limited number of young ladies are accepted. Miss F. Case of Rochester, N.Y., is in charge.

There are four boys' camps in the Park. Ahmek Camp, in charge of Taylor Statten, is considered the best camp of the kind in America. There are three other camps for boys from the United States, "Pathfinders" at Source Lake, H. J. Norton of Rochester being in charge; "Waubeno Camp" at Cache Lake, with H. F. Standerwick in charge, and "Minie Wa Wa Camp," with W. L. Wise of Bordentown, N.Y., in charge. There is a friendly strife amongst the different camps as to which will have the best record regarding fires, etc. A fine type of manhood is being developed that will show the results of early training in the forests of Northern Ontario.

In the Park there are fifty-one rangers' houses. There are four townships that have no rangers' houses, while a number have only one house. We should have at least twenty-four new ranger houses built so that our staff can successfully cover the Park. There are 255 miles of Park border to guard with 120 miles of railroad to watch for poachers and only a staff of thirty-five, all told, to cover twenty-eight townships and nine half townships. These facts I respectfully submit for your consideration.

I have the honour to be, Sir,

Your obedient servant,

MARK ROBINSON,
Superintendent Algonquin Provincial Park.

*The Honourable James Lyons,
Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 36

QUETICO PROVINCIAL PARK

KAWENE P.O., ONT., October 31st, 1923.

HONOURABLE SIR,—I beg to submit my report on Quetico Provincial Park for the year ending October 31st, 1923.

During the year the staff consisted of about seven rangers, and as the Park contains 1,000 miles and as all water routes are patrolled entirely by canoe the number of rangers is altogether inadequate. During the winter months the rangers' principal duty is to guard against poachers, and I am pleased to say that owing to the vigilance of the rangers, few, if any, have gained illegal entrance to the Park. There are, however, a few points which must be carefully guarded, chiefly the American Boundary and that covered by the Shevlin, Clarke Company's lumbering operations.

I regret to state that on April 29th we lost one of our rangers, presumably by drowning. Although a careful search was made for the missing man no trace of him could be found, so we were forced to the conclusion that he ventured on the then insecure ice and was drowned.

On June 25th and again in July we were visited by severe hail storms that did much damage to roofing, etc., and caused much work and expense. The portages on all old canoe routes were cleaned of fallen timber and growing brush and six new portages cut.

Fur-bearing animals are steadily increasing, particularly beaver. They may be seen in numbers during open water, swimming about and paying little attention to gasoline boat or canoe. On one occasion I have seen five otters sporting themselves and on another six. Deer and moose do not seem to be as numerous as formerly, but I think this is due more to the animals changing their feeding grounds to later burnings or cuttings rather than to any decrease in numbers.

Two fires occurred on the Park this summer, one, near the American Boundary, which did very little damage, burning about eight or ten acres of underwood, the other, on T.B. 48, the extent of which I have not yet learned.

I will require for the coming season one twin cylinder 7 h.p. heavy duty gas engine for purpose of towing the barge as the engine now used for that purpose is much too light, thus rendering it unsafe to tow horses as often required. I will also require two 17 ft. canvas canoes for use of rangers. I would also recommend that a fire pump, such as is used by the fire rangers with 1,000 feet of hose be placed at headquarters for fire protection. This pump could be carried on the gasoline boat now at headquarters down the French River and Pickeral Lake, a distance of twenty-five miles if necessary. There is no protection, whatever, at headquarters for fire and usually with only one or two men about in case of fire little could be done to protect buildings and equipment.

If I may be pardoned for doing so I would suggest a few changes in conditions.

1. That the superintendent be given power to engage rangers to the number allowed by the Department without having to have recourse to Toronto for authority, thus giving him an opportunity to secure more efficient men.

2. That the number of rangers be increased to twelve, these to patrol in winter and afford fire protection in summer, thus putting all rangers on the Park under one head. The fire rangers are paid more for their services than

the park rangers although the duties are the same, thus causing a friction and jealousy, which can scarcely be overcome in any other manner.

At the time of writing, and for three days previous, we are having a very severe storm, alternate snow and rain with strong wind from the northwest, making it impossible to travel, therefore the mailing of this report may be delayed.

I have the honour to be, Sir,

Your obedient servant.

HUGH McDONALD,
Superintendent Quetico Provincial Park.

*The Honourable James Lyons,
Minister of Lands and Forests,
Toronto, Ontario.*

Appendix No. 37

RONDEAU PROVINCIAL PARK.

MORPETH, ONT., October 31st, 1923.

HONOURABLE SIR,—I beg to submit my report for the fiscal year ending October 31st, 1923.

Rondeau Provincial Park has had a great many visitors this past season, and its popularity is well established as a favoured summer resort. Tourists come from far and near, and cannot say enough in its praise as being one of the finest natural parks in Western Ontario, and as an ideal spot for a real holiday.

Situated as it is between Rondeau Bay and the blue waters of Lake Erie, it is unexcelled as a beauty spot for the erection of summer cottages, which may be built either on the Bay side or on the Lake side as the parties may



Superintendent's House—Rondeau Park.

desire. Each side has its advantages. The Lake beach is admittedly one of the best fresh water bathing grounds in the Dominion and the fresh breezes from Old Lake Erie are most invigorating. While the Bay side has its advantages in the way of fishing, sailing, canoeing and motor boating, it has also good bathing grounds, as in places the bottom is sandy.

The Bay is about seven miles long and from two to three miles in width, and as it is practically surrounded by land it is ideal for aquatic sports of all kinds. In the fall when the wild ducks and geese are flying south the marshes of reeds and wild rice are full of birds and it is a most interesting time for hunters.

Rondeau Park proper covers about 5,000 acres and the greater portion of it is well wooded with all kinds of valuable timber, considerable pine, walnut, whitewood and all other varieties of hardwood being found here, and all the trees are tall, straight and well proportioned and are wonderfully free from all parasitic growths or fungi.

In this beautiful woods may be seen any number of deer. They have become very numerous of late years so that each season as many as can be disposed of for venison are being shot. This last year 129 carcasses were disposed of in this way, being sold on the Park by the carcass, which brought in a revenue of over \$1,000.00 and as they have hitherto destroyed the young growth in the forest to a great extent, already a difference can be noticed in the growth of young shrubs in certain portions of the Park where the deer were wont to browse. We have a small enclosure of about twelve acres in which are confined about sixteen deer. These are of great interest to visitors.

Our beaver colonies are thriving well. There are at least three families and their work shows that they lead a very busy life and are increasing in numbers.

The black squirrels are very numerous, hundreds of the little furry animals being seen and heard chattering throughout the forest.

Owing to the ravages of some red foxes, which have invaded the Park this last year, our stock of wild turkeys and Canadian wild geese has diminished somewhat in numbers.

We have been fairly successful this year in rearing pheasants. A goodly number of English Ring-necks have been liberated from year to year, and we receive many reports from points outside the Park, where the birds have nested and hatched and are thriving wonderfully well. We have also supplied eggs to those who have desired to rear them and in some cases they have been very successful in raising the young pheasant. Our aviary is well stocked with all varieties, such as the Goldens, the Silvers, the Reeves, Lady Amhersts, Chinese and English Ring-necks.

Considerable improvements have been carried out in the Park this year. Roads to the extent of about five miles have been gravelled.

The restaurant was thoroughly overhauled, and an addition built to it, which makes it much more convenient in every way.

The pavilion was shingled.

Two new lavatories equipped with Kaustine equipment were completed on the Lake side.

The two bath-houses were moved together and fitted with lockers. An office was placed between them. This has been greatly appreciated by the public and has been very satisfactory.

We must mention also how much the Hydro-Electric has been appreciated in the Park. It was installed in July, 1922, and has proved a wonderful boon

to the place which was formerly in dense darkness. It has not yet been placed in all the cottages but probably in due time will be.

The total number of cottages at present on the Park number 130. A number will be built this coming season. The lots are nearly all taken, so in all probability a new survey will be made at an early date.

As each year brings more visitors to Rondeau Park, the erection of a summer hotel is one of the necessary requirements. Many are asking for such accommodation, and if this was provided it would fill a long-felt want.

I have the honour to be, Sir,

Your obedient servant,

GEO. GOLDWORTHY,
Superintendent Rondeau Provincial Park.

*The Honourable James Lyons,
Minister of Lands and Forests,
Parliament Buildings,
Toronto, Ontario.*

Appendix No. 38

TORONTO, ONT., October 31st, 1923.

Honourable James Lyons, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit herewith the report of the Colonization Roads Branch of the Department of Lands and Forests for the fiscal year ending October 31st, 1923.

The report, as has been the custom for a number of years, is in tabulated form, and shows the details of the work and the expenditures in the various townships which were made directly by the Government, and also the grants which were made to municipalities passing Colonization Roads By-laws.

At the end of the statement is a summary or recapitulation of all the expenditures made during the year.

The total expenditure for the year was \$827,855.98. Of this amount \$514,236.72 was expended directly by the Government upon roads and bridges in three hundred and thirty-one different townships. The amount expended upon inspection and miscellaneous services was \$44,464.74, and the balance, a sum of \$269,154.52, was distributed as grants to one hundred and ninety-nine municipalities, which had passed Colonization Roads By-laws.

There is no doubt that the Colonization Roads Branch is playing an important part in the development of the Province in that area where assistance is given, in aiding agricultural, lumbering and, to some extent, mining industries.

The fostering of the tourist trade is not the least important of the functions of this Branch.

Attention has been given during the past fiscal year to the surveying and locating of new roads, and of diversions from roads previously constructed.

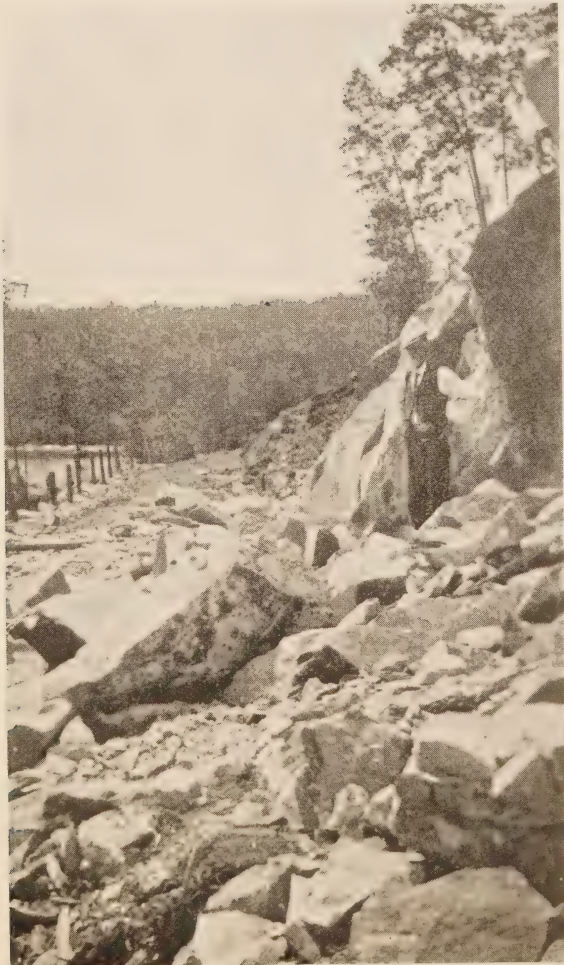
Municipalities and district organizations are co-operating to some extent in our work, but there is still room for improvement. I believe that if all grants were conditional on those benefited being compelled to assume some fraction of the burden of, and responsibility for, every expenditure, better results would be obtained.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,
Superintendent Colonization Roads.



Road construction difficulties in Frontenac County.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
1	Aberdeen Township roads.....								
2	Addington road.....			800	16				1,280
3	Admaston Township roads.....								
4	Airy Township roads.....			280	12				
5	Albemarle Township roads.....								
6	Algona North Township roads.....								
7	Algona South Township roads.....	80	40	80	20				
8	Alice and Fraser Township roads.....								
9	Allan Township roads.....								
10	Allan and Gordon Township roads.....	72	50	74	24	gravel	72	7	144
11	Anglesea Township roads.....								
12	Anson Township roads.....								
13	Anstruther Township roads.....	10	40	10	16	stone	11	16	20
14	Appleby Township roads.....								15
15	Armour and Proudfoot Township roads.....	724	50	40	20				
16	Armour, Chapman and Ryerson Tp. rds.....								
17	Armstrong Township roads.....								
18	Assiginack Township roads.....								
19	Aweres Township roads.....	167	66	312	21	gravel	281	6	320
20	Awrey Township roads.....								
21	Badgerow Township roads.....								19
22	Bagot and Blythfield Township roads.....								
23	Baldwin Township roads.....	70	33	40	16	gravel	30	6	30
24	Balfour Township roads.....								770
25	Balfour and Dowling Township roads.....								
26	Bangor, Wicklow and McClure Tp. rds.....								110
27	Barber Township roads.....	240	40	303	24				240
28	Barrie Township roads.....								35
29	Barrie Island Township roads.....								
30	Barry's Bay and Madawaska rd. (Nip.).....								42
31	Barry's Bay and Madawaska rd. (Renf.).....								300
32	Bastedo Township roads.....								
33	Baxter Township roads.....								
34	Beauchamp Township roads.....	80	40	240	24				
35	Beckwith Township roads.....								
36	Bedford Township roads.....								
37	Bedford Boundary road.....								
38	Bedford and Oso Boundary road.....	46	40	30	18				
39	Bedford Tp. Richardson Mine road.....			20	22	stone	20	22	40
40	Bethune Township roads.....								
41	Bexley Township roads.....								88
42	Bexley Township Cameron road.....								45
43	Bexley Township Victoria road.....								78
44	Bidwell Township roads.....								10
45	Bigwood Township roads.....	875	16	711	16	gravel	363	6	146
46	Billings Township roads.....								65
47	Bleazard Township roads.....	120	30	160	24				1,140
48	Blind River Parkinson trunk road.....	900	60	200	18				400
49	Bonfield Township roads.....	280	40	230	15	gravel	65	7	55
50	Boulter Township roads.....	320	40	549	18	gravel	178	15	130
51	Bracebridge-Baysville trunk road.....	64	40	64	18	gravel	64	7	128

COLONIZATION ROADS BRANCH.

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE						MILEAGE	EXPENDITURE	NUMBER	
Number	Span	Material	Number	Material	Material	Cubic Yards	Side-brushed		Graded and Shaped		SURFACED					
11	12	13	14	15	16	17	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	25	26	27
			4	metal			120	16	30	20	gravel	400	6	25	8	c.
1	24	cedar	17	cedar	stone	1,800	320	40	160	22	gravel	160	6	3.00	11,872.89	1
			3	metal					650	18	gravel	460	8	2.50	805.25	2
			11	cedar					1,270	15	gravel	160	12	4.88	1,503.64	4
											stone	785	6	2.46	1,004.86	5
			4	cedar			150	35	545	20	gravel	870	10	3.00	1,403.20	6
			8	cedar			810	15	2,220	15	gravel	1,125	7	8.25	2,115.75	7
			2	cedar			75	20	1,855	20	gravel	1,560	8	6.00	2,063.35	8
			4	stone	stone	310	50	20	80	32	gravel	680	8	2.15	1,620.81	9
			2	wood	earth	220	80	12	60	24	gravel	600	8	6.25	1,496.85	10
					stone	60			160	14	gravel	160	6	.50	571.50	11
1	17	cedar	1	stone	earth	159			272	16	gravel	269	6	1.00	1,000.05	12
			1	cedar	earth	11	10	8	1,910	12	stone	4	12	6.04	410.00	13
			10	cedar	clay	137	40	14	866	14	gravel	80	8	2.85	1,250.00	14
			2	cedar										2.26	900.25	15
			2	stone					80	14	gravel	40	6	.25	253.09	16
2	35	wood	11	cedar	clay	4,375	315	15	520	30	gravel	354	6	2.40	2,151.61	17
2	10	wood	2	stone	stone	50	310	20	340	24	gravel	490	7	2.12	1,410.80	18
			9	cedar	earth	9,941								1.00	8,632.60	19
											gravel	200	10	.63	200.00	20
			6	metal			315	16	1,030	12	gravel	760	6	4.00	2,868.19	21
			7	cedar					1,800	18	gravel	1,400	9	5.63	1,061.00	22
			5	wood	earth	1,687	110	30	560	16	gravel	420	6	3.25	1,497.21	23
			2	cedar	earth	50	550	20	450	33	gravel	250	6	2.45	500.70	24
			8	cedar	gravel	350	80	18	400	33				1.25	501.25	25
			12	cedar	earth	215	140	20	573	14	gravel	392	7	1.75	1,198.74	26
1	12	wood	4	wood	clay	300	303	16	470	18				3.25	1,679.66	27
			2	stone	stone	400	30	10	520	14	gravel	270	7	2.35	848.05	28
			2	stone	stone	50			430	20	gravel	630	7	2.00	1,604.58	29
2	8	cedar	8	cedar	stone	120			960	20	gravel	150	12	3.00	2,970.00	30
			5	c'ment	earth	3,000	100	66	320	25				1.00	2,900.35	31
			3	cedar					90	14	gravel	15	6	.30	100.00	32
			12	cedar	earth	200			765	18	gravel	200	5	2.40	1,995.50	33
			6	wood	clay	660	240	14	320	30	gravel	336	6	2.25	1,343.00	34
									80	20	gravel	900	10	2.82	1,006.22	35
			11	metal	stone	1,200	480	15	594	14	gravel	490	9	2.50	2,435.15	36
			4	cedar			45	20	70	14	gravel	360	8	1.13	558.46	37
					stone	800	46	18	95	14				.30	500.20	38
			1	stone	rock	110								.07	351.75	39
			5	cedar	stone	75			480	18	gravel	795	7	2.50	1,412.95	40
			1	cedar	stone	482	63	12	450	18	gravel	456	6	1.65	1,200.50	41
			3	tile	earth	473			180	26	gravel	185	6	2.60	501.30	42
			1	stone	stone	450	335	15	92	16	gravel	469	6	1.75	1,201.00	43
2	10	wood	12	stone	stone	525	260	16	690	22	gravel	885	7	2.90	3,589.76	44
			15	wood	stone	40	22	14	653	14	gravel	273	6	5.25	2,450.00	45
			13	stone	earth	1,645	450	12	1,010	20	gravel	795	7	4.50	3,054.20	46
1	12	cedar	8	cedar	stone	938	1,050	18	1,650	33	gravel	330	7	7.25	3,603.19	47
3	45	wood	8	wood	earth	8,140	200	32	300	18	gravel	600	6	5.50	6,089.70	48
1	12	cedar	15	cedar			810	40	3,002	15	gravel	1,342	10	12.88	4,498.17	49
			9	cedar			180	40	200	15	gravel	20	7	2.62	1,511.87	50
			10	stone	stone	1,250			548	18	gravel	1,199	6	4.20	8,616.81	51

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stamped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
52	Brethour Township roads.....	520	66	240	24				340
53	Bright Township roads.....	740	40	30	18	gravel	20	6	20
54	Bright Additional Township roads.....								
55	Broder Township roads.....	320	40						4,177
56	Bromley Township roads.....								
57	Brougham Township roads.....	190	40	321	20	gravel	340	10	
58	Brudenell and Lyndoch Township roads.....								
59	Brunel Township roads.....								
60	Bucke Townr ship roads.....	80	30	240	26	gravel	15	6	
61	Buckhorn Trunk road.....								
62	Burgess Township roads.....								
63	Burleigh Township roads.....								
64	Burleigh Trunk road.....	43	66	43	26	gravel	43	21	65
65	Burpee Township roads (Manitoulin).....	60	30	60	24	gravel	60	7	120
66	Burpee Township roads (Parry Sound).....								
67	Burton and MacKenzie Township roads.....	80	40	80	16				20
68	Burwash Township roads.....	105	16	170	12	gravel	140	6	97
69	Caldwell Township roads.....								
70	Calvin Township roads.....	200	40	200	15	gravel	200	7	390
71	Cameron Township roads.....	180	40	276	16	gravel	64	7	169
72	Campbell Township roads.....	295	20	465	16				80
73	Cane Township roads.....	470	40	400	26				793
74	Capreol Township roads.....	160	35	455	24				1,950
75	Carden Township roads.....								66
76	Cardiff Township roads.....								50
77	Cardwell Township roads.....								
78	Carling Township roads.....	400	55	322	18	gravel	186	6	266
79	Carlow Township roads.....								
80	Carnarvon Township roads.....								21
81	Cartier Township roads.....								
82	Casey Township roads.....	320	50	320	30				155
83	Casimir Township roads.....	147	16	242	12	gravel	40	8	181
84	Chaffey Township roads.....								
85	Chandos Township roads.....	250	40	300	16				300
86	Chapleau Township roads.....	35	30	35	30				70
87	Chapman Township roads.....								
88	Chisholm Township roads.....	103	40	103	20	gravel	15	5	249
89	Christie Township roads.....	160	45	160	26				160
90	Clarendon and Miller Township roads.....								
91	Cobden Township road.....	140	60	140	18				60
92	Cockburn Island roads.....								40
93	Cosby Township roads.....	755	16	800	12				370
94	Cosby and Delamere Township road.....	400	16	400	14				24
95	Creighton Township road.....	650	33	290	16	gravel	138	7	172
96	Crerar Township road.....	661	16	822	12	gravel	223	6	450
97	Crosby North Township roads.....								
98	Crosby South Township roads.....								
99	Dalhousie Township roads.....								
100	Dalton Township roads.....								42
101	Dana Township road.....			300	14				
102	Darling Township roads.....			120	24	gravel	120	12	
103	Dawson Township roads.....								

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE						MILEAGE	EXPENDITURE	NUMBER	
Number	Span	Material	Number	Material	Material	Cubic Yards	Side-brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods				Width, feet
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	16	cedar	16	wood	clay	2,883	150	20	590	26	gravel	40	6	3.74	\$ 2,611.67	52
											gravel	255	6	3.11	1,007.38	53
											gravel	510	6	1.60	1,049.39	54
4	14	wood	54	wood	earth	2,695	1,467	20	3,139	14	gravel	3,812	8	14.05	7,875.72	55
1	16	cedar							200	20	gravel	780	10	2.44	1,007.91	56
			2	cedar					100	20	gravel	160	8	1.57	753.00	57
1	8	cedar	9	cedar			1,660	20	2,450	24	gravel	1,360	10	9.26	2,033.50	58
			3	stone	earth	800			100	18	gravel	115	5	.44	1,002.06	59
1	12	wood	3	cedar	clay	5,870			640	28	gravel	671	6	3.69	3,270.28	60
			8	cedar			1,562	10	1,384	14	gravel	1,518	8	8.44	3,002.61	61
									360	24	gravel	740	10	2.32	999.55	62
									480	12	gravel	170	8	1.50	430.11	63
			8	wood	earth	1,060			160	16	stone	737	8	2.43	5,031.77	64
			13	metal	earth	402	190	12	685	30	gravel	700	8	3.06	2,203.97	65
1	12	cedar	6	wood			340	20	400	16				1.25	397.70	66
			18	cedar			133	12	400	16	gravel	866	7	3.00	1,820.35	67
1	12	cedar	6	wood										.54	490.00	68
									75	14	gravel	91	6	.30	390.00	69
2	11	cedar	17	cedar	stone	36	450	15	1,715	15	gravel	985	9	7.12	3,226.51	70
1	10	cedar	8	wood	earth	302	15	40	1,035	12	gravel	470	6	5.00	2,559.93	71
			6	wood	earth	485	505	20	790	26	gravel	1,640	7	6.75	5,054.83	72
			8	wood			615	30	409	24	gravel	609	6	5.35	2,857.48	73
1	20	cedar	8	wood	stone	1,320	1,535	24	1,256	33	gravel	1,100	9	10.50	4,114.55	74
			4	stone	stone	62	12	22	716	20	gravel	697	6	2.63	1,807.97	75
			13	stone	gravel	457	390	30	1,620	18	gravel	120	6	1.94	1,668.39	76
			3	wood	stone	75			40	18	gravel	400	5	1.25	701.03	77
			7	cedar										1.25	906.45	78
			1	cedar					730	18	gravel	803	7	3.52	601.02	79
			14	wood	stone	460	200	20	606	16	gravel	1,616	6	5.06	2,524.54	80
1	60	wood							70	33	cind'rs	480	8	1.50	264.00	81
1	34	wood	19	wood	stone	40	360	14	1,128	30	gravel	625	6	5.92	3,098.33	82
			19	cedar	stone	202	147	16	862	14	gravel	396	6	3.75	1,711.10	83
			2	cedar	stone	425			53	16	gravel	349	5	1.09	1,001.02	84
1	23	cedar	11	cedar			333	10	2,400	16	gravel	743	6	9.75	1,302.87	85
3	80	wood	6	wood	sand	500			218	22	gravel	110	10	.79	3,005.65	86
			1	cedar	clay	320	80	30	320	16	gravel	30	7	1.00	422.51	87
			19	wood	earth	140	430	20	2,854	15	gravel	1,622	9	12.30	5,409.76	88
1	31	cedar	3	cedar	earth	135								.50	1,000.59	89
			8	cedar	stone	700	50	10	495	16	gravel	1,150	8	4.00	2,155.23	90
											gravel	160	6	.94	902.48	91
			2	wood	stone	20	240	20			gravel	340	8	1.06	651.00	92
1	18	wood	24	wood	rock	105			700	12	gravel	730	6	6.04	2,133.52	93
			1	cedar										1.25	201.25	94
			6	wood	stone	205	400	20	400	12	gravel	320	6	5.05	1,633.75	95
1		rep'd	8	wood	clay	45			155	12	gravel	52	6	4.00	2,213.28	96
			16	wood			60	20	511	16	gravel	895	9	2.30	2,177.02	97
			2	tile			105	16	105	16	gravel	696	9	2.25	1,794.71	98
							70	20	470	24	gravel	1,368	8	4.35	1,954.72	99
			4	tile	stone	179	83	32	264	24	gravel	565	6	2.00	1,502.90	100
			8	cedar										.94	301.25	101
											gravel	260	12	1.20	503.38	102
			4	stone					330	24	gravel	290	8	1.22	807.25	103

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIP	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
104	Delamere Township roads.....	78	14	78	14	gravel	160	6	98
105	Denbigh Township roads.....	160	40						
106	Denison Township roads.....	209	40	26	33				
107	Digby Township roads.....								
108	Dill Township roads.....	320	33	130	33	gravel	85	7	1,000
109	Dorset Minden Trunk road.....	545	45	709	16				1,000
110	Douglas-Denbigh Trunk road.....			160	40	gravel	160	15	
111	Dowling Township roads.....								80
112	Draper Township roads.....								
113	Draper-Macaulay townline.....								
114	Dryden Township roads.....	160	33	160	24				50
115	Dungannon Township roads.....								
116	Dunnet Township roads.....	156	16	53	14	gravel	53	6	106
117	Dymond Township roads.....	100	40	320	30				200
118	Eastnor Township road.....								
119	Elzevir Township road.....								15
120	Espanola-Lee Valley Trunk road.....								
121	Falconer Township roads.....	270	16	270	12				270
122	Faraday Township roads.....								
123	Fenwick Township roads.....								80
124	Ferris Township roads.....	610	40	610	20				426
125	Ferrie Township roads.....								
126	Firstbrook Township roads.....								
127	Foley Township road.....								226
128	Franklin Township roads.....								
129	Freeman Township road.....								
130	Frontenac Trunk road.....	285	30	285	20	gravel	285	9	1,910
131	Galbraith Township road.....								80
132	Galway Township roads.....	103	50	103	16				
133	Galway and Cavendish Township road.....								
134	Garson Township roads.....								87
135	Gibbons Township roads.....								336
136	Garson and McLennan Township road.....								
137	Gladstone Township roads.....	40	26	100	18				
138	Glamorgan Township roads.....								10
139	Gordon Township roads.....	180	30	200	16	gravel	190	7	400
140	Gould Township roads.....	120	66	120	18	gravel	60	6	240
141	Grant Township roads.....								
142	Grasett Township roads.....								
143	Grattan Township roads.....	30	30	560	20	gravel	640	10	
144	Griffith Township roads.....	20	40	280	20	gravel	460	10	
145	Gurd Township roads.....	287	66	207	16				70
146	Haddo Township roads.....	320	16	320	12				
147	Hagar Township roads.....	1,125	40	564	33				353
148	Hagar Township Boundary road.....								
149	Hagar and Loughrin Township roads.....	325	33	820	33	gravel	134	9	40
150	Hagarty Township roads.....			240	20	gravel	280	10	160
151	Hallam Township roads.....								40
152	Hanmer Township roads.....	160	66	100	20	earth	160	18	1,385
153	Hardy and McConkey Township roads.....	570	40	420	12				
154	Harley Township roads.....								240
155	Harris Township roads.....	164	40	144	8				284

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE								MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic yards	Side-brushed		Graded and Shaped		SURFACED						
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet				
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
			2	cedar					87	14	gravel	110	6	.84	590.00	104	
			1	wood	stone	333	40	15	200	14	gravel	265	8	1.33	967.63	105	
					stone	215			214	33				1.31	399.95	106	
			2	stone	stone	68	25	30	103	18	gravel	262	6	.81	500.00	107	
			21	cedar	earth	160	228	33	325	33				2.52	1,450.20	108	
1	135	wood	27	wood	earth	12,303								2.20	19,932.98	109	
			3	c'ment	stone	200								.50	4,079.47	110	
			3	cedar	stone	200	145	40	105	33				.45	652.58	111	
			3	cedar	rock	10	100	16	420	18	gravel	556	6	1.72	1,001.25	112	
			5	stone	stone	3,087			106	18	gravel	42	6	.33	2,551.38	113	
1	12	cedar	11	cedar			1,190	25	790	20	gravel	90	8	4.28	1,499.36	114	
			4	cedar			196	10	315	18	gravel	608	7	1.90	1,204.81	115	
2	10	wood	15	wood					793	14	gravel	622	6	3.38	1,450.00	116	
4	35	wood	9	cedar	clay	899	60	20	1,580	28	gravel	1,458	5	8.08	5,465.69	117	
									220	20	gravel	256	6	.79	600.00	118	
					stone	35			320	16	gravel	78	6	1.00	206.40	119	
							445	20	445	30	gravel	325	10	1.38	1,001.25	120	
			2	cedar										.90	300.00	121	
			7	cedar	stone	18	107	12	291	14	gravel	499	7	1.60	803.43	122	
1	40	rep'd	1	wood	earth	399	157	25			gravel	84	6	.75	1,550.00	123	
2	20	cedar	45	wood	earth	124	1,120	40	5,075	15	gravel	2,423	7	21.55	8,088.85	124	
			6	cedar			640	15			gravel	480	6	2.00	700.05	125	
			8	wood	clay	1,000	40	45	160	22	gravel	300	6	1.00	848.52	126	
							20	18			gravel	177	6	.75	399.76	127	
			7	stone	stone	590			150	16	gravel	50	5	.50	1,001.76	128	
			2	cedar	earth	187			147	18	cind'rs	300	5	1.00	700.30	129	
			14	tile	stone	3,300			1,335	18	gravel	1,335	9	5.20	7,654.37	130	
			4	cedar	earth	932			295	22	gravel	585	6	1.81	1,599.86	131	
2	31	wood	6	cedar	stone	20	240	16	1,768	12	gravel	328	6	5.37	850.00	132	
			1	cedar			95	8	128	14	stone	88	8	.40	100.25	133	
			4	cedar	clay	400	10	15	415	33	gravel	20	6	1.29	710.70	134	
2	12	wood	5	cedar					1,105	12	gravel	350	6	3.40	1,029.61	135	
							1,650	10	960	8	gravel	545	8	5.10	1,005.75	136	
			1	wood	earth	700	1,081	20	450	22	gravel	1,066	6	4.43	3,780.24	137	
			9	cedar	rock	122	925	20	657	16	gravel	499	6	4.34	1,492.13	138	
			6	wood	rock	394	80	20	110	30	gravel	380	7	2.45	1,813.56	139	
			3	wood	stone	690	80	20	100	18	gravel	1,000	6	3.47	1,726.64	140	
			7	cedar			640	16	780	14	gravel	150	6	2.42	804.50	141	
			3	wood	earth	1,635	60	20	40	16	gravel	215	6	.67	947.95	142	
			5	cedar							gravel	600	8	3.86	1,000.50	143	
			6	cedar							gravel	200	15	2.05	1,003.50	144	
1	14	cedar	22	cedar	earth	350	240	12	640	16	gravel	138	6	2.89	1,575.18	145	
			4	cedar										1.00	400.00	146	
			24	cedar	rock	23	1,564	30	1,197	22	gravel	845	6	11.98	3,266.62	147	
			1	cedar					320	14	gravel	160	6	1.00	200.00	148	
			11	cedar	gravel	125	290	15	320	33	gravel	370	8	4.40	1,004.20	149	
1	10	rep'd	25	wood	sand	3,000	1,605	25	2,495	18	gravel	915	8	9.25	3,035.21	150	
			2	wood	earth	350			250	18	gravel	682	6	2.15	1,900.00	151	
2	18	cedar	8	cedar	gravel	1,330	740	20	720	33	gravel	930	8	6.50	4,365.33	152	
1	14	cedar	7	cedar										1.77	1,098.76	153	
1	86	wood	19	metal	earth	1,643	475	22	1,680	16	gravel	342	6	6.20	3,019.74	154	
1	12	wood	12	wood	stone	50			840	20	gravel	1,315	6	5.91	3,627.07	155	

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
156	Harvey Township roads.....								
157	Head Township roads.....	135	40	135	28	gravel	40	12	6
158	Henvey Township roads.....	200	30	280	16				
159	Henwood Township roads.....	240	40	240	30	gravel	270	6	50
160	Hilliard Township roads.....	30	16	30	16				233
161	Hilton Township roads.....	960	35	900	16	gravel	20	6	80
162	Himsworth North Township roads.....	620	40	620	22				38
163	Himsworth South Township roads.....	204	46	144	18	gravel	180	8	150
164	Hinchinbrooke Township roads.....								
165	Hodgins and Gaudette Township roads.....	58	66	132	20	gravel	132	20	264
166	Horton Township roads.....								
167	Howland Township roads.....								15
168	Hudson Township roads.....								254
169	Hugel Township roads.....	688	16	275	12				60
170	Humphrey Township roads.....	20	22	67	20	gravel	40	7	134
171	Hungerford Township roads.....								
172	Huntingdon Township roads.....								
173	Jennings Township roads.....								
174	Jocelyn Township road.....								
175	Johnson Township roads.....	160	40	160	25	gravel	100	6	320
176	Joly Township roads.....	320	50	320	20				
177	Kaladar Township roads.....	80	40	80	14				
178	Kehoe Township road.....	182	18	182	18	gravel	80	6	364
179	Kennebec Township roads.....								
180	Kerns Township roads.....	40	30	25	16				80
181	Kirkpatrick Township roads.....	270	16	270	12				20
182	Korah Township roads.....								
183	Laird Township road.....	160	33	160	14	gravel	136	6	272
184	L'Amable to Maynooth trunk road.....	40	40	100	24	gravel	100	7	200
185	Laurier Township roads.....	136	40	136	14				
186	Lavant Township roads.....			160	24	gravel	160	10	
187	Laxton Township roads.....								98
188	Limerick Township roads.....								
189	Lindsay Township roads.....								
190	Lorne Township roads.....	561	20	561	14				1,132
191	Loudon Township road.....	160	16	160	14				
192	Loughboro Township road.....	20	40	20	20				
193	Loughboro Township Desert Lake road.....								640
194	Loughrin Township roads.....								
195	Louise Township roads.....	546	40	160	24				500
196	Lount Township roads.....								
197	Lumsden Township roads.....								573
198	Lutterworth Township roads.....								40
199	Lyell Township roads.....	45	40	480	18	gravel	82	12	425
200	Macaulay Township roads.....	57	25	57	12				
201	Macchar Township roads.....	4	66	117	24				234
202	Madoc Township road.....								
203	Mara Township roads.....					gravel	73	7	
204	Marmora and Lake Township road.....								
205	Martland Township roads.....	1,198	16	588	12	gravel	78	6	208
206	Mason Township roads.....	153	16	109	14	gravel	102	7	
207	Matchedash Township roads.....								20

COLONIZATION ROADS BRANCH.—Continued.

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic Yards	Side-brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			2	cedar	stone	88			1,057	14	gravel	844	10	5.90	\$ 1,997.73	156
			2	cedar	stone	200			141	15	gravel	103	8	1.00	803.75	157
			4	wood										.87	493.00	158
			17	wood	clay	2,366	315	20	580	28	gravel	170	6	2.67	1,678.42	159
1	40	rep'd	16	wood	clay	568	212	12	420	20	gravel	861	6	4.04	2,403.82	160
1	18	wood	6	wood	stone	20	80	20	56	20	gravel	394	6	4.23	2,182.41	161
			7	cedar	gravel	1,750	286	26	75	16	gravel	164	6	2.83	1,702.03	162
			5	c'ment	stone	15			240	18	gravel	160	8	1.53	996.35	163
								20	155	14	gravel	420	9	1.30	1,355.44	164
			2	cedar	gravel	5,500								.42	1,952.27	165
			1	cedar	rock	60			160	24	gravel	270	10	.84	503.50	166
2	10	wood	3	stone	earth	107	15	20			gravel	200	8	.67	1,011.89	167
2	16	cedar	8	cedar	clay	7,157	140	12	435	24	gravel	1,279	6	4.64	3,784.06	168
			19	wood			100	16	466	14	gravel	675	6	5.34	2,076.85	169
			5	cedar	earth	744	160	12	160	16				.71	1,014.65	170
			4	cedar					300	16	gravel	455	7	1.43	1,140.73	171
			3	cedar					104	16	gravel	199	7	.77	652.95	172
			2	wood					340	16	gravel	193	6	1.07	790.00	173
			1	wood					30	20	gravel	240	9	.75	500.40	174
			11	wood	earth	1,455	240	33	130	22	gravel	295	6	2.01	1,303.76	175
			2	cedar			20	6	640	22	gravel	710	6	3.30	953.41	176
			6	stone	stone	100	400	10	120	14				2.75	609.03	177
			1	cedar	gravel	80								.57	301.25	178
			6	cedar	stone	106	55	15	600	16	gravel	585	9	2.02	1,100.00	179
3	40	wood	11	wood	clay	1,559	60	30	240	28	gravel	490	6	2.45	1,993.39	180
2	10	wood	8	wood					205	14	gravel	510	6	1.93	1,750.00	181
					sand	2,000			160	27	gravel	660	12	2.05	1,915.05	182
			2	wood										.50	300.95	183
1	16	cedar	16	cedar	stone	265			1,540	16	gravel	1,407	7	5.21	3,575.73	184
			3	cedar										.43	498.75	185
									100	12	gravel	300	10	1.45	570.01	186
			3	stone	gravel	457	18	15	563	18	gravel	436	6	1.83	1,648.40	187
									80	20	gravel	80	7	.25	202.88	188
											stone	860	6	2.67	1,201.48	189
1	10	wood	22	wood	earth	866	220	16	1,300	20	gravel	240	8	5.80	2,031.60	190
			2	wood	clay	100								.50	199.37	191
			1	stone	stone	250								.13	499.84	192
			8	wood	stone	856	420	10	1,280	12	gravel	720	6	4.00	4,994.33	193
			1	cedar	earth	330	324	24	290	33	gravel	250	10	1.03	351.75	194
			5	wood	earth	630								1.70	1,209.20	195
			11	cedar			740	20	692	16	gravel	522	6	2.78	1,299.90	196
1	25	cedar	12	wood	sand	260	538	20	835	18				3.90	1,470.50	197
			15	wood	earth	130	272	20	880	20	gravel	335	6	2.83	1,211.02	198
			11	cedar					950	15	gravel	35	9	4.47	995.90	199
			4	stone	stone	1,251			51	18	gravel	64	5	.50	1,402.97	200
2	14	wood	5	wood	earth	2,225	130	30	408	18	gravel	383	7	1.64	1,045.75	201
			2	wood	stone	41			90	18	gravel	96	6	.30	199.80	202
					clay	1,360	170	20	225	27	gravel	626	6	2.89	2,603.45	203
						100			64	18	gravel	64	7	.20	201.86	204
4		rep'd	18	wood	stone	85	160	14	1,760	14	gravel	790	6	11.86	3,453.90	205
			1	cedar										.48	300.10	206
			7	metal			278	12	330	18	gravel	609	8	2.55	1,392.38	207

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,
ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
208	Mattawan Township roads.....	106	40	106	15	gravel	80	5	81
209	May Township roads.....								100
210	Mayo Township roads.....								
211	McDonald and Meredith Tp. roads.....								
212	McKellar Township roads.....								
213	McKim Township roads.....								
214	McLean Township road.....								
215	McMurrich Township roads.....								
216	McPherson Township roads.....	48	14	74	12	gravel	96	6	103
217	Medonte Township roads.....								48
218	Medora and Wood Township road.....	650	20						190
219	Merritt Township roads.....	225	22	160	30	gravel	60	6	15
220	Methuen Township roads.....								
221	Methuen and Lake Township road.....								
222	Michipicoten Harbor road.....								
223	Michipicoten roads.....								
224	Mills Township roads (Manitoulin).....								89
225	Mills Township roads (Parry Sound).....	556	45	142	16				120
226	Minden Township road.....	60	45	112	22	gravel	100	6	17
227	Monmouth Township road.....								60
228	Monteagle and Herschel Tp. roads.....	30	40	31	18				
229	Monteith Township road.....								
230	Morgan Township roads.....	840	66	630	33	gravel	100	6	790
231	Murchison Township roads.....								350
232	Muskoka Township roads.....	115	20	100	12				
233	Nairn Township roads.....								
234	Neelon Township road.....	80	33	80	33	gravel	80	9	
235	Nipissing Township roads.....	240	40	419	16				480
236	Norman Township roads.....								160
237	Oakley Township roads.....								
238	Olden Township roads.....								
239	Orillia Township roads.....								
240	Oro Township roads.....								284
241	Oso Township roads.....								
242	Pakenham Township roads.....			80	24	gravel	660	8	
243	Palmerston Township roads.....			270	18	gravel	70	9	
244	Papineau Township roads.....								
245	Parkinson Township roads.....								296
246	Patton Township roads.....	320	50	42	20				
247	Pedley Township roads.....	360	16	720	14				100
248	Pembroke Township roads.....								180
249	Pennfather Township roads.....								
250	Perry and Bethune Township road.....								132
251	Perry Chaffey Township road.....	100	40	80	16				40
252	Petawawa Township roads.....								
253	Phelps Township roads.....	1,360	40	240	15				80
254	Plummer Township roads.....								
255	Plummer Add'l Township road.....								20
256	Prince Township roads.....								
257	Pringle Township roads.....								
258	Radcliffe Township roads.....	100	40	460	24	gravel	520	10	20
259	Raglan Township roads.....			300	28	gravel	400	10	

COLONIZATION ROADS BRANCH—Continued.

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic yards	Side-Brushed		Graded and Shaped		SURFACED					
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			8	wood	earth	530	620	40	2,030	15	gravel	200	12	7.73	2,225.56	208
			5	wood	earth	310	170	20	900	20	gravel	735	6	3.16	1,817.04	209
			6	cedar	earth	32			49	16	gravel	246	6	.77	599.79	210
									500	18	gravel	365	6	2.15	749.50	211
			16	cedar			200	20	960	18	gravel	920	6	3.50	1,497.84	212
2	15	cedar	5	cedar			300	40	320	33	gravel	320	8	1.94	702.28	213
			6	cedar	earth	300			100	18	gravel	170	5	.53	500.60	214
4		cedar	2	cedar	rock	20	225	20	240	16	gravel	235	7	1.36	800.24	215
			19	wood					1,672	14	gravel	1,858	6	9.10	3,193.90	216
			8	c'ment	clay	7,777			328	22	stone	506	8	2.00	2,652.58	217
			9	stone	stone	100								2.04	997.15	218
1	20	wood	10	wood	earth	500			130	25	gravel	210	8	2.00	1,241.40	219
			1	stone			100	16	319	12	stone	199	8	1.55	899.00	220
1	16	cedar	5	cedar					640	12	stone	48	7	2.00	297.75	221
2	25	wood			stone	75	240	25	240	12				1.00	209.45	222
5	40	wood	2	wood			960	10						3.00	2,856.91	223
			6	stone	rock	60	680	20	840	20	gravel	708	8	3.06	2,014.58	224
			7	cedar	stone	30								1.75	1,170.39	225
			4	cedar	earth	110								.20	497.40	226
			2	stone	rock	132	80	30	200	16				.62	503.31	227
1	20	cedar	17	cedar	earth	591	50	40	666	16	gravel	305	7	2.35	1,397.75	228
			7	wood			480	12	480	14	gravel	60	7	1.50	501.99	229
3	16	cedar	2	cedar	stone	600			160	24	gravel	190	7	3.72	2,466.81	230
			3	cedar					950	15	gravel	35	15	3.00	504.25	231
			5	cedar	stone	105			85	18	gravel	60	5	.63	700.62	232
			1	metal	stone	685	20	16	40	20	gravel	250	6	1.00	799.90	233
														.25	100.00	234
			7	cedar	earth	390	260	40	590	16	gravel	800	7	3.81	1,806.05	235
							160	24	80	33				.50	99.50	236
			6	stone	stone	370	160	16	100	18	gravel	140	5	.75	801.24	237
			4	wood	stone	80			640	12				2.00	199.85	238
			3	metal	stone	470	360	18	740	20	gravel	464	8	3.15	1,708.99	239
			2	metal	sand	3,534	131	16	327	20	gravel	482	8	1.75	1,406.81	240
					stone	110			245	14	gravel	215	8	.90	700.34	241
2	10	cedar					432	30	810	20	gravel	805	8	6.65	1,954.55	242
			6	wood	earth	1,300			80	14	gravel	545	8	2.54	2,031.77	243
			21	cedar	stone	30	200	40	3,133	15	gravel	425	12	10.13	3,482.28	244
			2	cedar	earth	55			160	20	gravel	160	5	.50	600.50	245
					earth	300	40	25	345	22	gravel	270	6	2.07	1,168.68	246
														2.25	14.22	247
									320	18	gravel	110	8	1.00	411.75	248
2	20	wood	6	wood			760	20			gravel	768	6	2.40	2,712.00	249
1		rep'd	1	tile	sand	100	80	20	50	14				.25	421.25	250
1	12	cedar	2	wood										.31	425.40	251
							690	25	870	18	gravel	480	6	3.03	800.46	252
5	10	wood	17	wood	earth	1,200			20	18	gravel	10	12	4.32	3,013.59	253
			8	wood	stone	54			540	20	gravel	830	6	2.58	1,702.03	254
			2	c'ment	stone	110			240	20	gravel	50	6	.75	300.75	255
			3	tile	earth	712	160	10	240	30	gravel	185	6	.75	510.85	256
1	20	wood	6	cedar			510	25	650	14	gravel	400	8	2.03	899.20	257
			4	cedar			300	18	650	18				3.72	1,206.25	258
			6	cedar	stone	1,000	100	18	300	20				2.19	1,209.10	259

DEPARTMENT OF LANDS AND FORESTS, ONTARIO

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		Length, rods
1	2	3	4	5	6	7	8	9	10
260	Rama Township road.....	116	26	28	16	gravel	8	6	.....
261	Ratter Township roads.....	900	16	420	12				320
262	Rayside Township roads.....	530	30	520	30	gravel	320	8	1,223
263	Ridout Township roads.....	650	40						
264	Robinson Township roads.....	300	48	200	24	gravel	100	8	20
265	Rolph Buchanan Wylie Tp. rcads.....	30	30	180	20	gravel	180	10	
266	Rose Township roads.....	80	30	120	18				
267	Ross Township roads.....								
268	Ryde Township roads.....								
269	Ryerson Township roads.....								
270	Ryerson and McMurrich Tp. road.....								
271	Sabine Township roads.....	320	40	640	15				1,280
272	St. Edmunds Township road.....								
273	Sandfield Township roads.....								231
274	Scadding Township roads.....	1,520	20	780	20	earth	960	8	1,920
275	Scollard Township roads.....	350	16	350	12				
276	Sebastopol Township roads.....								
277	Shedden Township roads.....	160	50	160	18				42
278	Sheffield Township roads.....								
279	Sheguiandah Township roads.....								
280	Sherbrooke North Township road.....					gravel	40	16	
281	Sherbrooke South Township road.....			120	40	gravel	320	10	
282	Sherwood, Jones and Burns Tp. roads..	60	40	180	24	gravel	20	10	
283	Sinclair Township roads.....	30	20	320	18	gravel	45	5	
284	Snowdon Township roads.....								200
285	Somerville Township roads.....								8
286	Spence Township roads.....								
287	Springer Township roads.....	80	14	300	12	gravel	50	6	
288	Stafford Township roads.....								
289	Stanhope Township road.....								86
290	Stevenson Township road.....								
291	Stisted Township roads.....	45	30	45	16				9
292	Storrington Township roads.....								
293	Striker Township roads.....	90	40	90	16				
294	Strong Township roads.....								80
295	Sunnidale Township roads.....								
296	Tarbutt and Tarbutt Add'l Tp. road.....								30
297	Tarentorus Township road.....								128
298	Tay Township roads.....								822
299	Tehkummah Township roads.....	500	50						100
300	Thessalon Township roads.....								90
301	Thompson Township roads.....								86
302	Tiny Township roads.....	116	15	116	22	gravel	46	10	
303	Tudor and Cashel Township roads.....								
304	Vankoughnet Township roads.....								
305	Vespra Township roads.....	170	30	190	24	gravel	40	8	
306	Waters Township roads.....	160	40						426
307	Watt Township roads.....	125	25	100	18				
308	Wells Township road.....								
309	Westmeath Township Roads.....								
310	Widdifield Township roads.....	731	40	499	18				317
311	Wilberforce Township roads.....	50	40	620	24	gravel	1,940	8	
312	Wilson Burnstown Trunk road.....			160	20	gravel	540	10	200
313	Wilson and McConkey Township road.....	88	40	88	16	gravel	88	8	192
314	Wollaston Township road.....	320	40	320	16	earth	320	16	160
	Total.....	37,847		36,016			14,211		43,868

COLONIZATION ROADS BRANCH.—*Continued*

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE								MILEAGE	EXPENDITURE	NUMBER
Number	Span	Material	Number	Material	Material	Cubic yards	Side-brushed		Graded and Shaped		SURFACED						
							Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet				
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
1		rep'd	1	cedar	sand	2,935	199	30	360	26	stone	547	6	3.52	\$ 2,778.25	c. 260	
			6	cedar	stone	265			240	12	gravel	240	6	3.69	1,450.00	261	
			15	cedar	earth	315			840	33	gravel	440	8	4.82	3,260.15	262	
			1	cedar	earth	70			118	16	gravel	118	5	2.39	1,000.50	263	
1	12	cedar	1	cedar	stone	888			100	20	gravel	500	7	2.54	2,210.55	264	
									1,720	18	gravel	400	8	6.45	1,284.97	265	
			2	wood	earth	650								.50	299.15	266	
			3	cedar					600	20	gravel	300	8	1.87	600.00	267	
			10	wood	earth	510			175	18	gravel	248	5	.79	1,003.86	268	
			2	wood	earth	877			320	16	gravel	681	7	2.15	1,115.23	269	
			3	cedar	gravel	400			400	16	gravel	320	7	1.25	601.65	270	
			7	cedar	stone	200								2.00	1,000.00	271	
					rock	950					clay	88	16	.26	1,199.96	272	
			6	wood	earth	2,003			1,150	22	gravel	624	7	4.25	2,398.57	273	
1	75	cedar	1	cedar										4.75	1,000.52	274	
1	17	cedar	6	wood	stone	350			102	20	gravel	410	6	2.40	991.27	275	
1	10	cedar	1	cedar					830	18	gravel	260	10	2.40	799.92	276	
			11	wood	clay	1,350			320	20				1.50	900.00	277	
			5	tile					50	14	gravel	439	8	1.50	602.92	278	
			1	wood					380	24	gravel	507	7	1.60	1,002.60	279	
					stone	400								.15	1,005.25	280	
			2	cedar										1.00	500.60	281	
			15	cedar					1,510	12	gravel	900	9	6.12	2,126.72	282	
			11	cedar	stone	40			40	16	gravel	44	5	1.14	1,129.07	283	
			5	cedar	stone	211			445	18	gravel	482	6	2.07	1,000.00	284	
			7	metal	stone	220			360	18	gravel	381	7	1.18	1,198.65	285	
			21	metal	sand	12			200	15	gravel	250	7	2.68	836.95	286	
			4	cedar					190	14	gravel	540	6	2.69	999.27	287	
1	20	cedar	2	cedar					750	20	gravel	860	8	2.85	1,001.00	288	
			14	cedar	stone	32			220	18	gravel	187	6	.69	499.90	289	
			3	wood	stone	492					gravel	176	6	.55	996.37	290	
			5	stone	earth	770			955	16	gravel	264	5	.98	999.94	291	
									100	12	gravel	560	8	1.75	592.75	292	
					stone	8			40	18	gravel	240	6	1.12	802.39	293	
			4	cedar					200	16	gravel	150	6	1.38	504.50	294	
									270	18	gravel	418	8	1.30	799.80	295	
											gravel	165	6	.51	300.51	296	
			1	c'ment					840	30	gravel	783	6	2.64	2,987.42	297	
			2	metal	stone	1,380			554	22	gravel	418	8	2.75	2,001.05	298	
			4	stone	stone	455			1,065	24	gravel	1,595	7	7.75	3,786.07	299	
			6	metal	stone	50			770	18	gravel	350	6	2.90	1,102.65	300	
									140	18	gravel	265	6	1.14	651.20	301	
			1	cedar	stone	1,945			272	22	gravel	206	8	1.22	1,000.52	302	
			3	cedar	stone	900			400	14	gravel	460	7	1.44	899.20	303	
1	41	wood			clay	818			103	30	gravel	15	6	.37	1,400.00	304	
			4	metal	sand	6,200					gravel	62	9	1.14	1,199.85	305	
2	24	cedar	7	cedar	gravel	555			50	33	gravel	181	10	1.22	1,049.72	306	
			2	stone					5	18	gravel	184	5	.96	600.24	307	
			4	wood					120	18	gravel	125	6	.39	500.74	308	
									1,000	24	gravel	1,040	8	3.25	1,010.80	309	
2	12	wood	25	wood	earth	1,523			3,540	15	gravel	1,418	10	15.37	4,871.75	310	
1	40	wood	7	wood	earth	200			400	18	gravel	225	8	7.60	3,183.27	311	
			7	cedar	stone	100			400	24	gravel	400	15	2.93	2,161.68	312	
			3	cedar										.28	500.50	313	
			4	metal	earth	500								1.00	1,001.51	314	
124			1,911			178,537			54,732					129,427	875.91	512,535.72	

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION.

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
1	Admaston, By-law No. 262.....	187	40	1,222	25	gravel	1,672	15
2	Albemarle, By-law No. 623.....			75	20	gravel	1,311	6
3	Alberton, By-law No. 2.....	320	40	320	40	gravel	737	6
4	Algona South, By-law No. 87.....			140	40	gravel	580	10
5	Alice and Fraser, By-law No. 4.....			560	24	gravel	328	12
6	Armour, By-law No. 421.....	320	20	320	16	gravel	320	7
7	Armstrong, By-law No. 27 (1922).....			3,240	30	gravel	1,131	6
8	Armstrong, By-law No. 38.....			480	24	gravel	1,373	6
9	Armstrong, By-law No. 40.....			1,220	22	gravel	295	7
10	Assignack, By-law No. 457.....	240	28	180	20	gravel	765	6
11	Atwood, By-law No. 127.....	380	30	426	30	gravel	55	6
12	Balfour, By-law No. 74A.....	320	15	3,290	33	gravel	2,200	10
13	Balfour, By-law No. 71 (overseer).....							
14	Bagot and Blythfield, By-law No. 350.....			480	20	gravel	1,920	8
15	Beauchamp, By-law No. 10.....	160	15	1,920	28	gravel	600	6
16	Bedford, By-law No. 69B.....			295	16	gravel	990	9
17	Belmont and Methuen, By-law No. 639.....	261	10	328	1	c.stone	671	8
18	Billings, By-law No. 268.....	600	12	540	24	gravel	600	7
19	Blezard, By-law No. 146.....			960	33	gravel	680	10
20	Billings, By-law No. 270 (grader).....							
21	Blue, By-law No. 65.....	396	66	261	30	gravel	709	6
22	Brethour, By-law No. 55.....	800	12	580	30	gravel	595	6
23	Brethour, By-law No. 26 (1922).....			955	30	gravel	1,271	6
24	Bromley, By-law No. 335.....			4,170	24	gravel	4,120	10
25	Brougham, By-law No. 726.....			40	20	gravel	400	8
26	Bucke, By-law No. 21A.....			30	15	gravel	348	10
27	Burleigh and Anstruther, By-law No. 1.....			600	12	stone	149	8
28	Burleigh and Anstruther, By-law No. 2.....							
29	Burleigh and Anstruther, By-law No. 1 (grader).....							
30	Burpee, By-law No. 125.....	60	20	100	24	gravel	410	7
31	Caldwell, By-law No. 328.....			450	14	gravel	1,350	8
32	Calvert, By-law No. 55 (1922).....	160	66	800	20			
33	Calvert, By-law No. 66.....			1,280	20	cind'rs	1,840	15
34	Cardwell, By-law No. 204.....			48	18	gravel	24	5
35	Carling, By-law No. 142.....	180	35	220	18	gravel	2,160	7
36	Carlow, By-law No. 150.....			330	16	gravel	333	7
37	Carlow, By-law No. 159 (grader).....							
38	Carnarvon, By-law No. 359.....	80	12	560	24	gravel	1,565	8
39	Casey, By-law No. 70 (1922).....	Fire	destroyed	records				
40	Casey, By-law No. 79.....			1,177	11	gravel	560	6
41	Casey, By-law No. 73 (overseer).....							
42	Casimir, Jennings & Appleby, By-law No. 99.....			2,400	14	gravel	1,920	8
43	Chamberlain, By-law No. 106.....			640	30	gravel	225	6
44	Chandos, By-law No. 80.....	4	24	3,554	12	stone	313	8
45	Chapman, By-law No. 7.....			675	16	gravel	601	8
46	Chapple, By-law No. 323.....	4,430	40	2,661	32	gravel	3,239	6
47	Chisholm, By-law No. 130 (grader).....							
48	Clarendon and Miller, By-law No. 214.....	1,630	30	125	14	gravel	440	9
49	Coleman, By-law No. 305.....			640	20	rock	2,920	8
50	Conmee, By-law No. 62.....	1,436	12	1,025	22	gravel	217	7
51	Cosby and Mason, By-law No. 66.....			1,360	14	gravel	625	6
52	Crosby North, By-law No. 558.....			190	10	gravel	112	8
53	Crosby South, By-law No. 912.....			434	8	stone	750	9
54	Dack, By-law No. 31 (1922).....	Fire	destroyed	records				
55	Dack, By-law No. 5.....			240	24	gravel	390	6
56	Day and Bright, Add't'l By-law No. 12.....			480	20	gravel	250	6

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1923.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
						6	concrete		5.50	\$ c.	1
						2	metal	1.00	4.50	1,499.80	2
						2	cedar		2.25	999.78	3
						1	cedar		2.00	500.00	4
						5	cedar		1.75	499.97	5
	clay	200				13	wood		1.00	400.00	6
						1	cedar		10.15	1,842.87	7
	stone	100				11	metal		5.25	1,748.72	8
66	stone	205				16	stone		4.50	899.91	9
480	clay	10				6	wood		2.50	1,194.82	10
3,605	stone	320				15	cedar	1.50	.50	1,013.25	11
									12.10	2,509.22	12
										72.00	13
	clay	1,000	2		rep'd	12	cedar		6.00	1,781.28	14
						4	wood		6.25	550.00	15
						2	tile		3.40	1,250.00	16
						4	metal		2.60	1,000.00	17
			1	18	wood	3	wood		3.50	700.00	18
1,920	stone	150				7	cedar		3.00	1,200.00	19
										91.43	20
120	clay	25				8	cedar	1.25	1.75	1,239.71	21
460	clay	200				2	wood		4.00	1,240.95	22
228	clay	1,100	2	12	wood	22	wood		6.00	2,118.28	23
80						7	metal		14.00	2,748.50	24
									1.25	300.00	25
40	clay	560				7	metal		.80	841.26	26
	stone	100				5	cedar		2.20	300.00	27
	c.stone	675								400.00	28
										45.00	29
	rock	415				3	wood		1.30	500.00	30
						4	cedar		4.55	1,475.77	31
640								.50	2.00	673.20	32
	earth	1,289	2	50	wood	3	wood	1.00	5.25	3,320.27	33
			2	11	cedar	2	stone		.25	299.95	34
3						16	wood	.32	5.75	1,200.00	35
16	stone	39				6	cedar		1.50	400.00	36
										45.15	37
20	stone	83				15	wood		5.75	1,400.00	38
										1,709.22	39
	clay	100				3	metal		4.25	1,105.51	40
										80.00	41
									8.25	1,700.00	42
	clay	1,600				6	metal		2.50	744.65	43
						2	stone	.02	11.10	500.00	44
						12	cedar		2.11	500.00	45
603	clay	7,518				34	wood	8.33	14.00	7,488.62	46
										91.43	47
			2		rep'd	7	stone		1.38	1,000.00	48
						6	wood		9.00	2,100.00	49
274	clay	1,185				19	wood	2.82	3.00	1,148.95	50
						2	cedar		4.25	497.38	51
20	earth	120				1	concrete		.60	200.00	52
						5	tile		2.75	650.00	53
										998.00	54
	clay	3,480				42	wood		1.50	735.40	55
									1.50	300.00	56

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION

Number	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
57	Dilke, By-law No. 115.....			200	28	gravel	626	6
58	Draper, By-law No. 421.....	129	20	568	18	gravel	796	5
59	Draper, By-law No. 430 (scrapers and drags)...							
60	Drury, Denison & Graham, By-law No. 215....	218	30	2,600	33	gravel	1,130	10
61	Dungannon, By-law No. 93.....			169	18	gravel	284	7
62	Dymond, By-law No. 214 (1922).....			940	30	gravel	1,678	6
63	Dymond, By-law No. 218.....			980	28	gravel	1,418	6
64	Dysart, By-law No. 683.....	457	30	5,404	16	gravel	4,276	6
65	Dysart, By-law No. 673 (overseer).....							
66	Eastnor, By-law No. 64 (1922).....	40	24	425	24	gravel	1,857	6
67	Eastnor, By-law No. 78.....	520	20	440	18	gravel	2,120	6
68	Eldon, By-law No. 541.....	140	16	1,044	24	gravel	1,677	7
69	Eldon, By-law No. 338 (overseer) (1922).....							
70	Eldon, By-law No. 545 (gravel).....							
71	Elzevir, By-law No. 70A.....	20	15	43	18	gravel	184	6
72	Emo, By-law No. 284.....	1,393	20	892	24	gravel	2,370	6
73	Evanturel, By-law No. 146 (1922).....	Fire	de	destroyed	records			
74	Evanturel, By-law No. 153.....			1,860	28	gravel	1,530	6
75	Faraday, By-law No. 141.....	10	10	325	16	gravel	523	7
76	Field, By-law No. 54.....			1,200	14	gravel	545	8
77	Freeman, By-law No. 15.....			210	20	cind'rs	310	5
78	Freeman, By-law No. 10 (overseer).....							
79	Gillies, By-law No. 14 (1922) (balance).....							
80	Gillies, By-law No. 22.....	300	66	1,620	20	gravel	665	8
81	Glackmeyer, By-law No. 24.....	1,579	30	5,560	25	gravel	2,296	10
82	Gordon and Allan, By-law No. 174.....	50	30	420	24	gravel	972	8
83	Grattan, By-law No. 301 (1922).....	350	20	2,975	30	gravel	1,320	8
84	Grattan, By-law No. 319.....			180	20	gravel	540	8
85	Hagarty and Richards, By-law No. 141.....			220	24	gravel	560	10
86	Hanmer, By-law No. 123.....			800	20	gravel	320	12
87	Harley, By-law No. 281 (1922).....	160	16	960	24	gravel	1,035	6
88	Harley, By-law No. 301.....	160	12	1,090	30	gravel	770	6
89	Harley, By-law No. 302.....					gravel	170	7
90	Harris, By-law No. 73 (1922).....			100	30			
91	Harris, By-law No. 77.....			160	30	gravel	435	6
92	Harvey, By-law No. 375 (1922).....	389	8	927	12	gravel	2,116	8
93	Harvey, By-law No. 384.....	180	20	3,206	14	gravel	1,055	10
94	Harvey, By-law No. 378 (grader) (1922).....							
95	Hilliard, By-law No. 141 (1922).....	Fire	de	destroyed	records			
96	Hilliard, By-law No. 149.....	100	16	150	24	gravel	650	6
97	Hilton, By-law No. 418.....	346	16	264	22	gravel	641	6
98	Himsworth South, By-law No. 90B.....	20	12	480	22	gravel	380	8
99	Hinchinbrooke, By-law No. 4.....	40	20	475	16	gravel	775	8
100	Horton, By-law No. 290.....			220	20	gravel	1,360	8
101	Howland, By-law No. 186.....			200	30	gravel	502	10
102	Hudson, By-law No. 92 (1922) (balance).....							
103	Hudson, By-law No. 96.....			40	26	gravel	382	6
104	Humphrey, By-law No. 400.....	480	20	4,400	18	gravel	2,400	8
105	Hungerford, By-law No. 277.....			660	16	gravel	750	7
106	Huntingdon, By-law No. 455.....			265	16	gravel	265	7
107	Jaffray and Melick, By-law No. 124 (1922).....	865	32	1,038	12	gravel	415	6
108	Jaffray and Melick, By-law No. 130.....	1,046	40	920	24	gravel	325	7
109	Jocelyn, By-law No. 321.....	40	30	160	18	gravel	370	6
110	Johnson, By-law No. 120.....			475	20	gravel	1,010	6
111	Joly, By-law No. 184.....	120	10	260	14	gravel	201	6
112	Kaladar and Anglesea, By-law No. 1.....			270	14	gravel	365	9

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1923.—*Continued.*

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
13	clay	40				1	wood		2.30	\$ c.	57
40	earth	315				35	cedar		3.50	550.00	58
										996.37	59
										31.75	60
20	gravel	1,225	2	16	cedar	4	cedar		9.00	1,188.50	61
	stone	25				2	cedar		1.00	300.00	62
	clay	200	3	14	wood	10	wood		8.00	2,929.29	63
	clay	5,950	2	35	wood	7	metal		8.00	2,870.87	64
465	earth	1,655	5	20	cedar	47	metal		30.00	4,924.32	65
										150.00	66
80	stone	420				9	concrete	1.00	5.50	1,500.00	67
100			3	15	cedar	9	metal		6.75	1,500.00	68
208	earth	580				5	tile		5.75	2,499.80	69
										64.00	70
										150.00	71
5	stone	197				1	cedar	0.11	.60	423.75	72
280			2	60	wood	18	wood	.25	10.75	3,638.47	73
										3,717.77	74
						10	wood		9.00	2,662.40	75
						7	cedar		2.00	600.00	76
						6	cedar		5.00	450.00	77
	earth	520	1	10	cedar	3	stone		1.00	498.25	78
										53.60	79
										49.42	80
287	clay	3,604				27	metal	1.00	5.25	1,383.12	81
516	clay	365	1	12	wood	9	wood		20.00	2,999.42	82
	stone	140				8	stone		3.50	1,249.77	83
						8	tile		9.30	1,300.00	84
						1	concrete		1.75	550.00	85
						1	cedar		1.75	743.25	86
320									2.50	800.00	87
	clay	1,215	2		rep'd	15	wood		6.00	1,414.97	88
210	clay	600	1		rep'd	14	wood		4.60	1,471.79	89
	clay	3,000				22	wood		1.00	396.05	90
						1	cedar		.31	87.88	91
400						1	concrete		1.50	774.94	92
						11	metal		8.00	815.84	93
	stone	40				1	tile		11.32	990.19	94
										152.50	95
										2,609.75	96
475	clay	2,368				42	metal		3.00	1,680.17	97
40	stone	120	1	22	wood	3	cedar		2.25	675.00	98
						1	cedar		2.40	312.50	99
						14	stone		3.15	1,750.00	100
	clay	14,000				4	metal		4.25	1,978.80	101
	stone	520				5	stone		1.90	750.00	102
										100.00	103
	clay	75	2	21	wood				1.25	599.97	104
10			1	24	wood	28	wood		13.75	1,500.00	105
						7	stone		2.40	698.33	106
									1.00	299.85	107
1,070	gravel	2,104	1	16	wood	19	wood	1.50	2.00	1,057.42	108
170	clay	4,472	1	16	wood	22	wood	2.50	1.25	1,500.00	109
15	earth	150				8	wood		1.25	400.00	110
	stone	10				2	wood		3.25	600.00	111
	earth	60	1	20	wood	1	wood		.90	200.00	112
	stone	25				3	stone		1.25	299.01	

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
113	Kennebec, By-law No. 2.....	90	20	2,140	16	gravel	2,180	9
114	Kerns, By-law No. 200.....	720	10	470	30	gravel	1,303	6
115	Korah, By-law No. 226 (1922).....	512	10	7,518	18	gravel	3,387	6
116	Laird, By-law No. 142.....					gravel	1,020	6
117	Lavallee, By-law No. 283.....	855	30	1,362	28	gravel	1,267	6
118	Lavallee, By-law No. 247 (overseer).....							
119	Laxton, Digby and Longford, By-law No. 360 (grader, cedar and gravel).....							
120	Limerick, By-law No. 5.....			640	14	gravel	320	7
121	Lindsay, By-law No. 346.....			900	16	stone	1,351	5
122	Loughborough, By-law No. 11B.....			125	16	gravel	1,610	9
123	Macaulay, By-law No. 101.....	132	8	1,118	18	gravel	889	5
124	Machar, By-law No. 593.....	132	10	252	18	gravel	269	10
125	Madoc, By-law No. 63.....			302	14	gravel	305	7
126	Madoc, By-law No. 66 (graders).....							
127	Mara, By-law No. 611.....	160	24	456	27	gravel	915	6
128	Marmora and Lake, By-law No. 574.....			880	18	gravel	760	7
129	Marmora and Lake, By-law No. 576 (culverts, scraper and plow).....							
130	Martland, By-law No. 159.....			1,196	30	gravel	1,760	8
131	Matchedash, By-law No. 218.....			935	18	gravel	752	8
132	Mayo, By-law No. 363.....	20	20	384	14	rock	314	6
133	McDonald, Meredith and Etc., By-law No. 166.....			70	20	gravel	1,615	5
134	McDougall, By-law No. 189.....	1,560	10	4,655	16	gravel	3,881	8
135	McIrvine, By-law No. 249.....	160	66	145	17	gravel	280	6
136	McKim, By-law No. 195.....			240	16	gravel	720	12
137	McLean, By-law No. 472.....			360	14	gravel	180	5
138	McLean, By-law No. 476 (grader).....							
139	McMurrich, By-law No. 300.....	505	20	520	20	gravel	600	8
140	Medonte, By-law No. 600.....	121	15	1,868	20	gravel	2,680	7
141	Medora and Wood, By-law No. 386.....	1,950	12	1,415	18	gravel	1,800	7
142	Medora and Wood, By-law No. 383 (machinery).....							
143	Medora and Wood, By-law No. 377 (overseer).....							
144	Minden, By-law No. 380.....	428	15	1,218	18	gravel	304	6
145	Monck, By-law No. 493 (overseer).....							
146	Monck, By-law No. 496.....	80	30	410	18	gravel	1,120	5
147	Monmouth, By-law No. 266 (1922).....	505	20	869	16	gravel	598	6
148	Monteagle and Herschel, By-law No. 535.....	211	20	592	16	gravel	352	7
149	Morley and Pattullo, By-law No. 267.....	1,178	33	590	32	gravel	1,558	6
150	Muskoka, By-law No. 308.....			290	18	gravel	830	5
151	Nairn, By-law No. 141.....	30	12	50	30	gravel	250	7
152	Neebing, By-law No. 424.....	2,734	40	2,375	24	gravel	2,068	7
153	Neelon and Garson, By-law No. 167.....			640	16	gravel	1,120	8
154	Nipigon, By-law No. 212 (overseer).....							
155	Oakley, By-law No. 225.....			88	18	gravel	187	5
156	Oakley, By-law No. 228 (forge).....							
157	O'Connor, By-law No. 223.....	1,098	30	1,901	22	gravel	544	7
158	Olden, By-law No. 76B.....	40	15	155	16	gravel	780	9
159	Olden, By-law No. 66B (overseer).....							
160	Oliver, By-law No. 204.....	770	33	460	22	gravel	1,720	8
161	Orillia, By-law No. 1122.....	450	10	423	22	gravel	2,972	8
162	Oro, By-law No. 474.....			1,114	25	gravel	952	10
163	Oso, By-law No. 197.....			295	16	gravel	1,505	9
164	Paipoonge, By-law No. 192.....	1,785	33	430	12	gravel	2,644	9
165	Palmerston, By-law No. 263.....	90	20	330	14	gravel	1,190	9
166	Palmerston, By-law No. 257 (overseer).....							

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
167	Perry, By-law No. 169					gravel	320	6
168	Plummer, Add't'l By-law No. 182			80	18	gravel	1,585	6
169	Port Carling, By-law No. 286			120	20	gravel	90	12
170	Prince, By-law No. 95	220	16	280	30	gravel	388	7
171	Rama, By-law No. 401	397	46	92	24	gravel	279	6
172	Ratter and Dunnet, By-law No. 38	1,550	16	1,639	14	gravel	1,288	8
173	Rayside, By-law No. 275			3,820	16	gravel	1,160	8
174	Rear of Yonge and Escott, By-law No. 612			215	16	stone	300	9
175	Ridout, By-law No. 54	65	45	65	16			
176	Ridout, By-law No. 55	140	10	175	18	gravel	985	5
177	Ross, By-law No. 390 (1922)			2,120	30	gravel	1,918	10
178	Ross, By-law No. 397			600	20	gravel	1,080	8
179	Ryerson, By-law No. 503	80	20	160	16	gravel	595	8
180	Ryerson, By-law No. 506	320	25	640	16	gravel	160	8
181	St. Edmunds, By-law No. 289					gravel	770	
182	St. Joseph, By-law No. 462					gravel	1,324	6
183	Sandfield, By-law No. 262	200	40	1,460	14	gravel	225	6
184	Sebastopol, By-law No. 307	105	16	30	16			
185	Sheffield, By-law No. 686			175	16	gravel	1,380	9
186	Sheffield, By-law No. 678 (overseer)							
187	Sherbourne, By-law No. 309	400	15	54	16	gravel	220	6
188	Sherbourne, By-law No. 306	61	45	61	16			
189	Sherwood, Jones and Burns, By-law No. 40	20	40	270	20	gravel	270	8
190	Shuniah, By-law No. 470	3,677	40	6,492	22	gravel	5,418	8
191	Snowdon, By-law No. 221			900	16	gravel	570	6
192	Somerville, By-law No. 756	116	15	811	14	stone	894	6
193	Springer, By-law No. 331			12,580	14	gravel	2,480	6
194	Stafford, By-law No. 728			1,535	30	gravel	898	8
195	Stanhope, By-law No. 392			466	18	gravel	80	6
196	Stanhope, By-law No. 381 (overseer)							
197	Stephenson, By-law No. 558			700	18	gravel	980	6
198	Stephenson, By-law No. 559 (machinery)							
199	Stisted, By-law No. 269			43	16	gravel	418	5
200	Stisted, By-law No. 273 (grader and drag)							
201	Stisted, By-law No. 276 (gravel pit)							
202	Storrington, By-law No. 507			618	14	gravel	1,904	8
203	Sunnidale, By-law No. 514			32	20	gravel	920	9
204	Tarbutt and Tarbutt, Add'l By-law No. 7A			320	18	gravel	800	6
205	Tarentorus, By-law No. 229	240	20	3,120	24	gravel	1,603	6
206	Tay, By-law No. 826	465	15	2,151	24	gravel	2,290	8
207	Tehkummah, By-law No. 255			350	24	gravel	690	7
208	Thessalon, By-law No. 12			240	18	gravel	575	6
209	Thompson, By-law No. 134			240	24	gravel	35	6
210	Tiny, By-law No. 651	235	20	1,076	22	gravel	1,332	8
211	Tisdale, By-law No. 244			118	26	stone	2,203	12
212	Tudor and Cashel, By-law No. 5	30	12	900	16	stone	301	7
213	Tudor and Cashel, By-law No. 9 (culverts)							
214	Vespra, By-law No. 663	184	22	1,331	22	gravel	1,996	9
215	Watt, By-law No. 557			343	18	gravel	2,150	5
216	Westmeath, By-law No. 318			940	24	gravel	1,870	8
217	Whitney, By-law No. 94	240	20	240	20	gravel	480	9
218	Widdifield, By-law No. 329	480	15	490	24	gravel	1,480	12
219	Wilberforce, By-law No. 520	30	40	2,840	20	gravel	2,480	10
220	Wollaston, By-law No. 9			750	16	gravel	800	7
221	Wollaston, By-law No. 4 (machinery)							
222	Worthington, By-law No. 118	262	30	387	30	gravel	490	6
	Total	46,949		180,116			189,759	

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1923—*Concluded.*

DITCHED		CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards.	Number	Span, feet	Material	Number	Material					
10	11	12	13	14	15	16	17	18	19	20	21	
										\$ c.		
						32	wood		1.00	483.79	167	
						5	stone		5.00	1,425.00	168	
108	earth	4,911				9	wood		.40	1,748.25	169	
	clay	132				1	metal		1.40	460.67	170	
						6	cedar		1.75	599.32	171	
1,780	stone	15	2	12	cedar	15	cedar		10.00	1,472.92	172	
	c. stone	102	2	10	cedar	2	tile		14.00	1,393.64	173	
	stone	590				2	wood		1.50	496.25	174	
74	earth	225				13	cedar	25		250.00	175	
						4	cedar		3.10	1,000.00	176	
									8.50	1,300.00	177	
	clay	210							3.40	1,250.00	178	
						2	wood		1.90	750.00	179	
						3	wood		2.00	200.00	180	
						6	cedar		2.45	600.00	181	
						3	wood		4.25	1,200.00	182	
	stone	350				5	wood		4.60	399.95	183	
	clay	237						35		200.00	184	
									4.50	1,200.00	185	
										66.60	186	
	stone	40	2	11	wood	4	cedar		1.25	350.00	187	
61	clay	724				1	stone	20		250.00	188	
									.90	400.00	189	
1,301	earth	3,123	4	17	wood	51	wood	4.00	28.00	8,812.15	190	
548	stone	100				39	cedar		8.00	1,000.00	191	
150	earth	1,069				12	metal		5.00	1,500.00	192	
	rock	30	2	16	wood	11	cedar		40.00	3,385.23	193	
104	clay	40				6	metal		5.25	950.00	194	
85	stone	50				12	cedar		2.50	493.50	195	
										15.20	196	
40	stone	1,960	1	10	wood	35	wood		4.00	1,999.56	197	
										236.66	198	
	stone	107				2	concrete		1.40	449.75	199	
										110.12	200	
										10.00	201	
									6.00	1,400.00	202	
74	clay	195				5	metal		3.00	1,000.00	203	
									2.50	497.75	204	
290	earth	498				5	cedar		10.40	1,439.48	205	
484	earth	2,497				11	metal		8.50	3,726.77	206	
						4	stone		2.20	575.00	207	
	stone	20				2	concrete		1.75	674.72	208	
									.75	99.92	209	
150	earth	460				2	metal		5.00	1,549.97	210	
	earth	200				3	tile		7.00	5,137.02	211	
10	stone	255				10	cedar		3.50	749.00	212	
										31.77	213	
714	earth	3,435				15	metal		7.25	2,750.00	214	
	earth	875				30	cedar		7.25	1,998.86	215	
						5	metal		7.00	2,006.20	216	
40									1.50	1,249.26	217	
210	gravel	630				9	cedar		4.20	1,500.00	218	
						6	cedar		9.00	1,750.00	219	
	rock	250	1	12	cedar	6	cedar		2.75	899.61	220	
										72.50	221	
55						6	wood		3.15	800.00	222	
26,840		133,149	68			1,817		42.05	942.32	269,154.52		

MISCELLANEOUS.

Southworth Township, Right-of-way.....	\$ 1.00
Awers Township, Right-of-way.....	200.00
Haviland Township (Accountable).....	1,500.00
Storage and Insurance.....	213.90
Road-making machinery.....	9,128.71
Inspection.....	25,912.83
Engineering and Surveying.....	7,876.15
Bank Charges on Over-draft.....	9.25
Compensation to Injured.....	975.20
Medical and Hospital Charges, for Injured Workmen.....	348.70
Total.....	\$46,165.74

No.	RECAPITULATION	Cleared and Stumped	Graded and Shaped	Surfaced	Ditched	Cut and Fill	Bridges	Culverts	New Road	Old Road	EXPENDITURE
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles	
1	Direct Grants.....	37,847	189,557	143,638	43,868	178,537	124	1,911	169.04	706.87	\$ 512,535.72 269,154.52 46,165.74 827,855.98
2	By-law Grants.....	46,949	180,116	189,759	26,840	133,149	68	1,817	42.05	942.32	
3	Miscellaneous.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Total.....	84,796	369,673	333,397	70,708	311,686	192	3,728	211.09	1,649.19	827,855.98

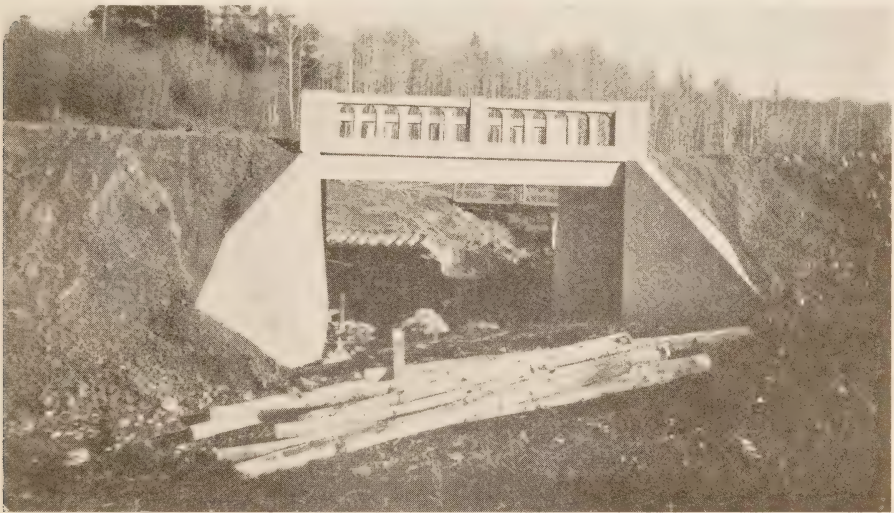
Appendix No. 39

TORONTO, ONT., October 31st, 1923.

To the Honourable James Lyons, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit to you the report on the construction and maintenance of highways and bridges, under the provisions of the Northern and Northwestern Ontario Development Act, 1912, and amendments, during the season ending 31st October, 1923.

The "Maintenance Patrol" system on the principal roads, assisted by construction parties where extensive betterments become necessary, has been again followed, with increasing success, a very marked improvement in the general condition of the roads being noticeable during all periods of the open season.



Stoney Creek bridge—International Highway.

Many of the secondary roads have been extended to meet the requirements of settlement, and the tabulated statement also shows that considerable progress has been made in connecting up and extending trunk roads in practically every district to provide "through routes" as far as possible.

Extensive betterments have been made on existing trunk roads, by surfacing many stretches with crushed stone where gravel was unsuitable or difficult to procure.

The surveys referred to in last year's report, which were started with a view to the construction of a road to connect Timiskaming District with the roads in Southern Ontario, have not yet been completed, the survey of the suggested route northwards from Sturgeon Falls and Field, being now arranged for.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Director, Northern Development Branch.

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK DONE,

		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	ALGOMA DISTRICT.														
1	Trunk Road, Sudbury to Sault Ste. Marie to Day Mills, Section I	7.0							5.5	re			92,400 clean'd		3912
2	Day Mills to Cutler, Section II.....	17.0							2	re					5515
3	Cutler to Copper Cliff Section III.....	20.5							11.5	re			2650		11715
4	Sault Ste. Marie to Garden River.....														
5	Garden River to Echo Bay.....								3.2	re					200
6	Worthington to Vic- toria Mine.....								2.5	re			4126		
7	At Thessalon.....														
8	At river near Massey														
9	At Vermillion River.														
10	On wes* branch of Blind River.....														
11	At Tyadala Creek...														
12	Othe Roads— Little Curren — Warenciffe Rd....	4.5	.75	30			.75	30						3.5	2025
13	Lorne-Louise Rd.....						.5	18	.5	18	.25	14			
14	Goudreau Rd.....		1.14	40			.8	20	.2	18				3.6	3193
15	Lockalsh Rd.....		.5	30											
	St. Joseph's Island & Campement D'Ours.														
16	General Maintenance												6210		2278
17	Pine Island Ferry Rd. (Mainland Section)		.75	66	.75	66	.75	33	.75	32			7920		2701
18	Pine Island Ferry Rd. (St. Joseph's Sec'n)						.25	33	.44	24			4050		2344
19	Pine Island Ferry Rd. (Across Pine Is.)...		.75	66	.75	66	1	33	1	24					2436

NORTHERN DEVELOPMENT BRANCH.

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
.....	705 1/4	.....	395	75	.....	8	.....	.....	.....	2145 c.yd. earth fill. 830 lin. ft. railing; 300' x 6' high masonry wall; 38 c.yd. rock cut; 207 c.yd. stone fill.	1
.....	.....	.....	250	60	.....	1	1	3	Scraped and painted.	1.33 miles clay road cov- ered with sand. Cement leads placed on 5 culverts.	2
.....	.....	.....	516	82	2	5	12	9	Scraped and painted. 1 Repaired.	500 c.yd. stone fill. 6 mls. road widened. Overhead crossing widen- ed. 250 c.yd. rock excavation. Cement leads placed on 7 culverts.	3
442	3741	3.13	.....	.....	.....	1 tile 4 length	.....	.....	.....	900 lin. ft. railing. 53,275 gals. Domtar used in road surface.	4
6020	6020	3.1	.....	2	.....	.....	.....	.....	.....	.....	5
6080	6062	3.0	.....	.....	.....	1	.....	.....	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	1	110x18 steel bridge with 4' side- walk, partially constructed.	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	1	10x20 concrete.	.....	8
.....	.....	.....	.....	.....	.....	.....	.....	1	Repaired.	26,160 F.B.B. timber used.	9
.....	.....	.....	.....	.....	.....	.....	.....	1	Pile bridge repair- ed and rock fill replaced. 160' span.	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	1	60'x18' steel bridge on concrete abutments with piled footings.	.....	11
.....	.....	.....	.....	4.5	1	2	.....	.....	.....	.....	12
.....	.....	.....	.....	.....	32	3	.....	.....	.....	Scow built, 14x30.	13
.....	.....	.....	.....	1.5	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	.....	267	60	6	8	.....	.....	.....	.....	16
.....	.....	.....	.....	.....	1	4	.....	.....	.....	.....	17
.....	.....	.....	2	.....	1	11	1	.....	.....	.....	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Cribs built and filled for scow landing.	19

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK DONE,

		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L ft.	L mfs.	Yards used
	ALGOMA DISTRICT.—														
	<i>Manitoulin Island.</i>														
20	Gore Bay-Silverwater- Meldrum Bay Rd.....		4.5	50	4.5	50	4	30	10.5	re				6.25	6458
21	Gore Bay-Kagawong Road.....								2.38	re				3.5	2673
22	Gore Bay-Providence Bay Rd.....	.5					.25	24	4.25	re				8.25	8823
23	Providence Bay- Mindemoya-West Bay Rd.....	.25							.7	re			495	.8	984
24	West Bay-Sheguindah Road.....													.06	151
25	Little Current-Mani- towaning Rd.....		.75	30	.75	30	.5	20	1	28				1	771
26	Little Current-West Bay Road.....	1.0	.5	66			.5	30	1.63	26				4.3	3400
27	Manitowaning- Mindemoya Rd...	1.4					.75	10	.8	re			100	6.25	4474
28	West Bay-Kagawong Road.....													4.8	3718
29	Little Current-Espan- ola Road.....		14.75	66	10.75	66	13.75	33	13.25	30			1183	2.75	2186
	COCHRANE-PORCU- PINE DISTRICT.														
30	Blount Township.....		1.26	66	1.26	66	1.25	30							
31	Brower Township....	3.5	1.12	66			1.6	24	.12	24			17757		
							1.5	30							
							.12	33							
32	Calder Township.....		1.3	66			1.14	33					5260		
33	Calvert Township.....		1.42	66	1.42	66							268	.5	155
34	Clergue Township....	1							.5	re			400		
35	Clute Township.....	2					2	26	2	26	.03	10	100		
36	Fournier Township....		2	66	2	66	1	33	.2	26			12044		
37	Fox Township.....	.5	4.55	66	6.55	66	5.5	30	1	24			30100		
38	German Township....								1	re			810		

NORTHERN DEVELOPMENT BRANCH—Continued.

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
7663	7663	3.25	40	.....	5	10	.....	.....	.....	420 c.yd. stone fill.	20
.....	12	.....	2	6 repaired	.....	.....	.....	375 c.yd. rock exca.	21
.....	28	.....	7	.....	.....	.....	.....	900 c.yd. earth and stone fill.	22
.....	30	.....	5	5	.....	.....	.....	300 c.yd. clay fill. 100 c.yd. stone fill.	23
.....	2	.....	.....	.....	.....	1290 c.yd. stone fill. 168 c.yd. clay fill.	24
.....	22	.....	1	2	.....	.....	.....	200 c.yd. clay fill.	25
.....	38	.....	3	3 repaired	.....	.....	.....	450 c.yd. stone fill.	26
.....	7	.....	2	.....	.....	.....	.....	60 c.yd. earth fill.	27
.....	20	.....	3	.....	.....	.....	.....	.....	28
.....	43	5	.....	1	Timber-cribbed piers. 1 114x18x6 2 18x18x5 1 18x16x4 1 30x18x4 1 36x18x5	5551 c.yd. rock excav. 4184 c.yd. earth excav. 578 c.yd. rock fill. 26125 c.yd. earth fill.	29
.....	1.4	1.5	33	4	.....	1	Repaired.	3680 c.yd. clay used in road surfacing. 5288 c.yd. cut and fill. 950 ft. lin. corduroy removed. 2610 ft. lin. creek cleared. 100 c.yd. rock in cribs.	30 31
.....	2	15	.....	.....	1	20x5x17 1 20x6x17 1 Repaired.	60 c.yd. muskeg excav.	32
.....	4	.....	2	.....	2	.....	.....	335 c.yd. clay used in road surfacing.	33
.....	2	.....	2	.....	.....	1	160x14 1 Repaired.	.....	34 35
.....	13	.....	1	.....	.....	2288 c.yd. muskeg excav.	36
.....	30	.....	.....	.....	.....	.....	37
.....	3	.....	7	.....	.....	210 c.yd. earth fill.	38

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK DONE,

		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L mfs.	W ft.	L ft.	L mfs.	Yards used
	COCHRANE-PORCUPINE DISTRICT.— <i>Continued.</i>														
39	Glackmeyer Twp.....		1.5	66	1.5	66	.5	33	1.5	re				1.2	910
40	Hanna Township.....														
41	Kennedy Township..	2	.93	66	.93	33	.93	33			.01	10	8500		
42	Lamarche Township..	4.5	1.	66			1	33	2	re			11045	1.6	1365
							1	24							
43	Leitch Township.....		.73	66	.73	66	.73	33							
44	McCart Township....		4	66	4	66	3	33					46840	.25	100
45	Mountjoy Township..		2	66	2	66	2	33			.5	16	6562		364
46	Newmarket Twp.....		3	66	3	66	3	33					7800		
47	Pyne Township.....						3.5	33					44880		
	<i>Township Boundary Lines.</i>														
48	Blount-Glackmeyer..		.25	25	.25	25			3.25	re			5280		
49	Blount-Leitch.....								2	re					
50	Brower-Glackmeyer..														
51	Brower-Fox.....														
52	Brower-Kennedy.....												940		
53	Brower-Lamarche....													1.25	844
54	Brower, North Boundary.....													.56	447
55	Calder-Clute.....		.9	66									550		
56	Calder-Colquhoun....	3					2.25	33	.75	24			900		
57	Calvert-Clergue.....	2					2	33							
58	Clute-Fournier.....								5	re			264	.63	472
59	Clute-Ottaway.....		1.06	66					1.02	30			3722		
60	Clute-Glackmeyer....								3	re				.13	80
61	Fournier-Lamarche....														
62	German-Matheson....														
63	Glackmeyer- Lamarche.....								4	re				3.2	2122
64	Paymaster Road.....								4	re				1.62	2905
													Gen'l r	pairs	669
65	Timmins-Iroquois Falls Trunk Road..	5.5					.5	26	3.66	26			133572	13.62	12519
							.26	33	4.27	re					

NORTHERN DEVELOPMENT BRANCH—*Continued*.

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
					5			1	20x16 (Pole)	430 c.yd. clay fill.	39
								1	Rebuilt.		
					2						40
			3.25		17		1	2	Repaired.	1695 c.yd. clay fill.	41
								1	18x10x5	1350 ft. lineal creek	42
									1 35x16	cleared and widened.	
									1 47x16		43
					23			1	Repaired.		44
					3			1	30' span.	700 c.yd. cut and fill.	45
											46
					16			2	14x12x12		47
				2							48
											49
										Abitibi Ferry repaired and	50
										re-installed.	
								1	40x16 (Temp.)		51
								2		880 ft. lineal corduroy	52
										removed.	
			4							940 ft. lineal creek cleared.	53
			4								
					3						54
					6					5000 c.yd. cut and fill.	55
										5500 c.yd. cut and fill.	56
			15					3			57
					4			1	At Frederick- house.	215 c.yd. rock fill.	58
										3963 c.yd. earth fill.	
										3832 ft. lineal creek cleared	59
										121 c.yd. rock in bridge	
										piers.	
										660 ft. lineal corduroy re-	
										removed.	
										3442 c.yd. cut and fill.	
											60
											61
											62
			16								63
	821	1	16.25					11		251 c.yd. clay over muskeg	64
12473	12473	2.25	28	2		18	17	1	Completed (from last year).	29744 c.yd. cut and fill.	65
										1.13 mls. crosslay removed.	
										288 ft. concrete pipe made and installed.	
										2907 c.yd. rock excav.	

DEPARTMENT OF LANDS AND FORESTS,
ANNUAL REPORT OF WORK DONE,

		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.		L mls.	Yards used
	COCHRANE-PORCUPINE DISTRICT.— <i>Continue.</i>														
66	River Road west across Lots 3 to 10, Mountjoy								5.5	re			1790	1.5	402
67	Latchford-Cochrane Rd. (Monteith to Cochrane)						5.5	33						5.58	3806
68	Monteith-Iroquois Falls Road						2	40	7	24 26	.35	14	9655		
	DRYDEN DISTRICT.														
69	Aubrey Township...	1.48	2.25	66	2.0	66 2.25 47	1.25	18 35 33	1.25	24 22 re	.01	18	11645		
70	Browning Road													1.75	1400
71	Dryden-Richan Road	2.25	4.5	66	1	66	1.5	33	5.0	24 2.25 re			55431	3.5	2108
72	Eton Township		1.5	66	1.5	66	1.5	33	.5	22 .75 24			16457		
73	Eton-Sandford Boundary		1.25	66	1.25	66	1.25	33	1.25	24			2200		
74	Eton-Wainwright Boundary .....	.36			.36	20								.5	400
75	Finn Settlement Rd. ....		.5	66	.5	66	.5	33	.25	22			675		
76	Ignace-Ossaquin Rd. ....	.5	1.5	66	1.75	66	1.75	33	3	re 1.5 24	.08	16	2755	.5	1267
77	Melgund Township		1.	66	1.	66			2	22			800		
78	Mutrie Township		3.75	66	3.75	66	3.75	33	2.5	22	1.25	16	13234		
79	McLean Creek Rd. ....		.75	66	.75	66	.75	33							
80	Mining Road		2.5	66	2.5	66	2.5	33	2.5	24					
81	Rice Lake Road	1.69			.25	33 1. 40	.25	33	1.47	22			1175	1.5	960
82	Rice Lake School Rd.		3.25	66	3.25	66	2.8	40							
83	Rugby Township												5759		
84	Sandford Township .....	.85	.5	66	.5	66	.5	33	1.0	24	.25	16	59836		
85	South-west Quibell Road		2.5	60	4.75	60	4.	33	2.25	24 4.5 re	.08	18	10955	1.5	721
86	Vanhorne Township .....	.5			1.5	33									
87	Vermillion-Quibell Rd		1.25	66	1.25	66	1.25	35	1.75	24			438	1.75	1450
88	Vermillion-Dinorwic Rd. (General) .....	.56													1022
89	Eagle River to Dry- den Section .....	.60			.18	25							132893	12.3	9733
90	Dryden to Wabigoon Section													5.5	5900
91	Wabigoon-Dinorwic Section		6.5	66	3.5	66	5.5	35	3.25	24	.06	16	8705		
92	Wabigoon Township .....		.25	66	1.0	66	1.13	33	.88	24					

NORTHERN DEVELOPMENT BRANCH—*Continued.*

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cover- ed			Wood	Stone or Conc.	Metal	No.	Description		
					10						66
			13		3		1				67
			5		16	1	6	1	Timber.	1000 c.yd. clay fill. 4090 c.yd. cut and fill. 90 yds. lineal fencing and guard rail.	68
					29					9002 c.yd. clay covering swamps. 906 c.yd. earth fill.	69
			2		10			1	Temporary.	710 c.yd. cut and fill.	70
					8					6423 c.yd. earth fill.	71
					5						72
					2						73
			4		9						74
			5		3			1	12x5x18	1713 c.yd. earth and gravel fill.	75
					3					533 c.yd. earth fill.	76
					9					10755 c.yd. clay covering corduroy.	77
					1						78
					6						79
					8					1833 c.yd. clay covering swamp.	80
											81
											82
					1						83
											84
					4					1100 c.yd. cut and fill. 2742 c.yd. clay covering swamp.	85
			8		2					1071 c.yd. cut and fill. 277 c.yd. fill.	86
											87
			146		2						88
					2					475 c.yd. rock excav. 311 c.yd. rock and clay fill.	89
											90
					24					1916 c.yd. earth fill. 9000 c.yd. clay covering swamp.	91
					7					293 c.yd. clay covering rock.	92
										1333 c.yd. earth fill.	

DEPARTMENT OF LANDS AND FORESTS,
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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	DRYDEN DISTRICT.— <i>Continued.</i>														
93	Wainwright Twp....	2	.5	66	.25	33	.2	12	1.5	24			2580		
					.5	66	.5	35	3.5	re					
94	Wainwright-Zealand Boundary.....				1.5	42	2.0	35	1.75	24			2400		
95	Zealand Township...		1.25	66	1.25	66	.75	35	1.0	24			5500		
	ENGLEHART DISTRICT														
96	Armstrong Township.														
97	Bayly Township....	1.25													
98	Bryce Township....														
99	Chamberlain Twp....														
100	Dack Township....												200		
101	Evanturel Township.								2.5	re				.5	488
102	Ingram Township...														
103	Kittson Township...		1	18			1	16	1.5	16					50
104	Marter Township....						.17	26							
105	Robillard Township..												300		
106	Savard Township....								1	20				.07	84
107	Sharpe Township....								3	20					
	<i>Township Boundaries</i>														
108	Armstrong-Evanturel														
109	Bryce-Robillard....														
110	Chamberlain-Pacaud.														
111	Chamberlain-Savard.								1	re				1.5	1544
112	Dack-Evanturel....														51
113	Dack-Robillard....													1.	1900
114	Evanturel-Igram....														
115	Evanturel-Marter....														
116	Robillard-Savard....													1.25	1838
117	Robillard-Truax....								1.	re			2200		
	<i>Trunk Roads.</i>														
118	Charlton-Elk Lake..						.5	24	.75	re			2000		365
119	Charlton-Englehart.								5.	re			700	.75 4.5	1069 2790 1725

NORTHERN DEVELOPMENT BRANCH—*Continued.*

YEAR ENDING 31ST OCTOBER, 1923

Crushed Rock			Drag- ging Miles	Gen- eral Rep'r's Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L. cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
					10		2			.25 mls. creek cleared. 3497 c.yd. earth fill.	93
					7					8976 c.yd. earth fill. 1277 c.yd. clay and sand covering swamp.	94
			1		7					3000 c.yd. clay covering swamp.	95
			8	3				5			96
								12			97
								2			98
					3			24	1 30' span. 2 36' span.	517 c.yd. clay fill.	99
			9		2 5 re	paired	101			600 ft. lineal corduroy re- moved. 254 c.yd. clay fill.	100
				1				5			102
				2				4			103
										.45 mls. covered with 528 c.yd. of sand and clay.	104
					6			59		618 c.yd. filling. .43 mls. covered with 375 c.yd. of clay.	105
			2.5		1 3 re	paired				204 c.yd. rubble wall.	106
					10					2220 c.yd. hill cutting.	107
								10			108
				3.5	4			25			109
								15			110
				.5	1			7	1 100' span steel on concrete abut- ments. 1 20' span.	1067 c.yd. hill cutting. 1333 c.yd. fill.	111
											112
				6	1			15		900 c.yd. clay fill.	113
								1			114
								6			115
									1 30' span.		116
					3					245 c.yd. clay fill.	117
				.5	21			1	Cedar, 16x8	963 c.yd. field stone for roads.	118
			4	On- hills		3	19		1 60' span.	8010 c.yd. cut and fill. 532 c.yd. concrete end walls on culverts.	119

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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	KAPUSKASING DIST.— <i>Continued.</i>														
146	Trunk Road along Can. Nat. Rly....	3	5.75	66	5.75	66	1.75	30	.5	24	.10	16	21220	9.77	6715 1630
					.50	36	.50	36	7.97	30					
					3	24									
	KENORA DISTRICT.														
147	Charlesbois Road....		1.03	16 to 36	1.19	16 to 36	1.19	16 to 36	1.83	16 & 18	.41	18	12500	4	3878
148	East Melick Road, Pelletier Bridge Diversion.....		.5	40	.88	35	.74	35			.30	16	669		
149	Jaffray Township....													.5	602
150	Keewatin-Manitoba Boundary Road....								.87	20			3500	3	3946
151	Kenora-Keewatin Rd. Norman Diversion)		.06	66					.22	36			400		
152	Kenora-Redditt Road						1.01	33	2.3	24	.05	18	11080	.25	200
							1.5	50	1.63	24	.17	20	3237	.25	270
							2.7	55							
153	Pellatt Road.....		4.	10									900		244
154	Pellatt Road, Lac Lulu Branch..		.19	66	5.75	40	.19	33	.19	22	.31	18	2500	3	2000
			3.03	40			5.03	40	5.53	24			22440	4	2600
155	West Melick Road....													1.75	588
	MATHESON DISTRICT.														
156	Beatty Township....								2.5	re 24			7752	1.4	1197
157	Benoit Township....		.75	66	1.5	26	1.5	26	2	20			2284		
					.75	66	.32	33	1.9	24					
158	Bowman Township....		.65	66	.5	66	.65	26	.95	20			910	.4	350
									1.25	22					
									1.5	16					
159	Carr Township.....		2.0	66	2.0	66	1.25	26	1.93	20			371	.1	126
									1.5	22					
160	Clergue Township....				1.	26	1.	26							
161	Currie Township....		.88	66	.88	66	.75	26	1	20			2246		
									3	22					
162	Hislop Township....		3	66	2.	66	3	26	3.75	24			3200		
									1	20					
									1	22					
163	Maisonville Twp....		.75	66			.5	26							
164	Playfair Township....		6.5	66			1.7	26	.75	re				.38	314
165	Stock Township....		6	66	1	26	1	26	.25	20			5372		
					3.5	66			2.0	re					
166	Taylor Township....	.5	4.75	66	4.25	66	5	26	2.5	20			8609		
							1.5	re	1.	24					
									2.	re					
167	Walker Township....		1.5	66	1.5	66	2.	26							

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'r's Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
			4	2 5	36 7 re	paired	14	1	Repaired.	6135 c.yd. cut and fill.	146
			8		4	2					147
						3				400 c.yd. rock excav.	148 149
					2	3		1	16x18	1000 c.yd. rock excav.	150
					1	1				2710 c.yd. rock excav. .22 mls. covered with 585 c.yd. cinders.	151
			10		35					3284 c.yd. rock excav.	152
				4	19	4 35		1	16x18	2500 ft. lineal fencing.	153
								1	135x18 (Pole).	1500 c.yd. rock excav.	154 155
			4	2.5	11		7			1636 c.yd. clay.	156
					19						157
					16		2	1	Repaired.	1000 c.yd. cut and fill. 500 c.yd. clay surfacing.	158
			4		17		4	1	Repaired. 50' long.	200 c.yd. clay fill. 500 c.yd. clay surfacing.	159
					30			1	5x16x18	1092 c.yd. clay surfacing.	160 161
					35					921 c.yd. clay surfacing.	162
								1	Repaired.	791 c.yd. clay fill. 1460 c.yd. clay surfacing.	163 164 165
					23			2	16' span. 17' span.	1929 c.yd. clay surfacing.	166
											167

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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	MATHESON DISTRICT —Continued.														
	Township Boundaries.														
168	Beatty-Carr.....		1.78	66	1.78	66	1.78	26	.25	re					48
169	Bond-Stock.....	.5											709		
170	Bowman-Currie.....	1.25							1.25	re			800		
									2.0	18					
171	Bowman-Hislop.....														
	Trunk Roads, etc.														
172	Hattie Road, Beatty Township.....		2	45	2	45	2	24	2	24			245	1	673
173	Latchford-Cochrane Road.....		2	66			2	33	2.5	re			380	9.4	3773
									5	28					
174	Ramore—Lightning Ri er Road.....														
175	Monteith-Shillington Road.....													5.0	2404
176	Munro Road.....								2	re			300	1.5	890
									2	24					630
177	Shillington-Porcupine Road.....	3.5											300 cleaned	4.1	2530
	MUSKOKA DISTRICT.														
178	Gravenhurst-Bala- Parry Sound Rd...														
179	Huntsville-Dwight Road.....	.75					.06	55	22.5	re			1588		
									2.6	20					
180	Severn-North Bay Rd						2	40	323	re			32620	13.25	20060
							.5	10							
181	Utterson-Rosseau- Parry Sound Road. NIPISSING-SUDBURY- RENFREW DIST.		1	66											
182	Balfour-Dowling Boundary and be- tween Cons. II and III in both Twps..						1.25	24	2	24			2840		60
183	Gold Nugget Mine Road, Street and Scadding Twps....		4.5	22											
184	Monte Rouleau Road								1.25	16			200	1.5	1100

DEPARTMENT OF LANDS AND FORESTS,

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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	NIPISSING-SUDBURY- RENFREW DISTRICT —Continued.														
	North Bay-Pembroke Road.														
185	Section I, North Bay- Callander.....	.5	.54	66	.54	66	.54	35	.75	re			13200		405
186	Section II, Callander- Mattawa.....	2												14.5	10977 4093
187	Section III, Mattawa- Klocks.....														2973
188	Section IV, Klocks- Mackeys.....	.5	9 1.25	45 66	8.8	45	9 2.5	30 24	11.6 .75	24 18			895	1.2	1105
189	Section V, Mackeys- Chalk River.....	.75												1.2	233 867
190	Section VI, Chalk River-Petewawa...		9.5	66	8.5	66	9.6	24	11.8	24	.05	10	788		
191	Section VII, Pete- wawa Pembroke...	.5											1750		1541
192	North Bay-Sudbury Road.....	34.5					.25	12	34	re			30347	8	6708 7449
193	North Bay-Widdifield Road.....	.2			.2	30	.2	20	1.88	20			138		1782
194	St. Charles-Noelville Road.....	5	1.75	66			1 2	20 15	2.5 3.5	20 18			14890	10.6	5998
195	Sturgeon Falls-Smoky Falls Road.....														30
196	Sturgeon Falls-Field Road.....	4.25							6	re			8625	3.1	2153
197	Sudbury-Azilda- Chelmsford-Larch- wood Road.....								39	re			7800	7.5	5895 1124
198	Sudbury-Capreol- Milnet Road.....	4.5	1	40			.25 .5	40 24	42.5 .6	re 20	.2	12	4250	6.1	4823
199	Warren-St. Charles Road.....								10	re					167
200	West Shining Tree Rd.	2							8	18	.15	16		4.9	3914

NORTHERN DEVELOPMENT BRANCH—Continued.

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging	General Rep'rs	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Miles	Miles	Wood	Stone or Conc.	Metal			No.	Description
6269	6269	1.77	61	8.5	....	4	1	....	.....	150 ft. lineal cement tile drain.	185
.....	240	35	.....	.....	.....	1	Temporary 30' span.	.....	186
.....	132	25	.....	.....	.....	.....	.....	40 c.yd. filling.	187
.....	14.5	.....	46	2	.....	.....	.....	1781 c.yd. rock excav. 14543 c.yd. earth fill.	188
.....	24	6	.....	.....	.....	.....	.....	2773 c.yd. loose stone re- moved from roadway.	189
.....	16.5	.....	1	1	.....	.....	.....	1847 c.yd. cinders surfac- ing.	190
.....	67	10	.....	1	1	.....	.....	10660 c.yd. fill.	191
4898	3326	2.65	.....	.....	9	24	1	1	60' span.	1726 c.yd. fill.	192
.....	466	74	2 covered 2 repaired	.....	.....	1	3x5x18, concrete.	252 c.yd. rock excav. 424 ft. lineal retaining wall.	192
.....	54.8	5	1	10	.....	.....	.....	322 c.yd. stone in Rip Rap	193
.....	5	.....	49	1	5	.....	.....	4057 c.yd. filling.	194
.....	584 c.yd. stone in Rip Rap.	194
.....	4	.....	.....	.....	.....	.....	.....	195
.....	4	.....	.....	.....	.....	.....	.....	546 c.yd. stone and clay filling.	196
.....	300 c.yd. rock excav.	196
.....	30.5	11	12 covered	3	.....	.....	.....	679 c.yd. gravel. 1077 c.yd. slag.	197
.....	219 c.yd. cinders and c.yd. rock used in gen- eral repairs to Sudbury- Murray Mine Section.	139
.....	69	9	16 repaired	2	.....	1	3x12x100 corduroy.	30 c.yd. rock excav. 566 c. yd. rock filling.	198
.....	5	2	Repaired.	6650 c.yd. rock excav.	199
.....	56	1	33' span.	111 c.yd. rock fill.	200

DEPARTMENT OF LANDS AND FORESTS

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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.		L mls.	Yards used
	PARRY SOUND DIST.														
201	Booth Road.....													3.0	1290
202	Burk's Falls-Mag- netawan Road.....		.90	66			1.41	66	1.00	33			5178		1829
203	Chisholm-North Bay Road.....								3.475	22					
204	Emsdale-Parry Sound Road.....		1.20	40			.50	40	1.60	20			5561	3.0	1796
			.16	35			1.50	25	.75	re					
							.50	30							
							.50	35							
205	Parry Sound-Mag- netawan Road.....													3.00	1228 10
206	Road from Parry Sound to Junc. of Bala & Rosseau Rds	1.41	.50	66	.20	66	.30	24	10.225	16			57328	3.50	1793
									7.0	re					
207	Powassan-Chisholm Road.....												747		920
208	Powassan-Nipissing- Restoule Road....												3400		1371.5
														12.0	7961.5
209	Cross over road from Powassan-Loring Rd. to Trout Creek- Loring Road Twp. of Pringle.....						1.23	30	1.5	24			1529		
							.9	24							
210	Severn-North Bay Trunk Rd.-(Novar- Callander Section).	34.50							60.16	re			13960	7.50	9583 5486
211	Sundridge-Magnet- awan Road.....								.125	22			3840		2018
									1.00	30					
									2.0	re					
212	Trout Creek-Loring Road.....	.40	1.97	66	1.92	66	3.63	30	3.90	23			26123		2241
			.32	40			1.31	33	1.17	18					
									21.25	re					
	RAINY RIVER DIST.														
213	Barnhart Road Car- penter Township..													1.5	995
214	Barwick Consolidated Sch. Route, Twps. of Dobie and Shen- ton and Bdy. Line..	.92			4.0		.40	30	2.41	20	.09	10		3.08	1953
215	Barwick to Black Hawk.....	.13			1.0	30			2.0	re				.1	63
216	Black Hawk to Deer Lock Road.....													2.2	1420
217	Black Hawk to Fin- land Road.....		2.0	66			2.0	12	2.0	20			1073	.1	61
218	Burriss-Carpenter Boundary.....	2.0							2.0	20					
219	Burriss Consolidated School Road.....		2.0	40	1.0	40	2.0	40	1.42	20	.1	9	3650		

NORTHERN DEVELOPMENT BRANCH—*Continued*

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Crushed Rock			Drag- ging	General Rep'r's	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
			Miles	Miles							
			9.875	6.18	47					80269 c.yd. earth fill. 10454 c.yd. earth excav.	201 202
					14		5			982 c.yd. earth fill. 162 c.yd. earth excav. 487 c.yd. Rip Rap.	203 204
					4						205
					56					233 c.yd. rock excav.	206
			8.50 39.0	3.00 8.5	3 7					170 c.yd. earth fill.	207 208
			2.10		27					1839 c.yd. Rip Rap. 6827 c.yd. fill.	209
			356.00	35.25	51		9		90' concrete and steel. 10' reinforced concrete. 7' reinforced concrete.	4168 c.yd. excav. 1868 c.yd. earth fill. 3.33 c.yd. rock excav.	210
			2.0	6.5	10					672 c.yd. earth fill. 53 c.yd. rock excav.	211
			47.07	5.0	70			2	20' span.	63303 c.yd. fill. 34042 c.yd. excav. 396 c.yd. gravel fill. 648 c.yd. Rip Rap.	212
			24								213
			18		3						214
			44		16						215
											216
				14							217
											218
					12					1150 c.yd. clay fill.	219

DEPARTMENT OF LANDS AND FORESTS,
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		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	RAINY RIVER DIST. —Continued.														
220	Carpenter School Rd.	1.0							.78	28			726	2.0	1272
221	Crozier Road												2500		
222	Dance Road, Burriss and Dance Twps.		.35	36									2178	.76	494
223	Devlin Road, Burriss Township													2.65	1702
224	Emo-Off Lake Road	.925											4554	5.35	3426
225	Fort Frances-Rainy River Road	16.88					2.25	30	15.125	re			17928	31.49	20957
							.50	12							
226	Frog Creek Road		1.25	60			1.0	30	1.125	20				1.00	600
227	Gameland School Rd., Pratt Township								.21	20				.13	50
228	Howse Road, Lash Township		1.2	66			.25	32	.31	20			4000		
229	Indian Mission Road													2.63	1806
230	La Vallee Road, La Vallee Village, north and south	.25							1.0	16			1485	1.45	943
231	McCrosson-Pratt Boundary		.73	66			.78	20					3960		
232	McGinnis Creek Rd.													2.2	1393
233	Mine Centre Road	7.0											3900	.535	323
234	Nelles School Road												3712		
235	Nelles Pattullo Bdy								.03	20			5774	.34	220
236	Pattullo-Tait Bdy	.50											8745		
237	River Road, Ayles- worth Township	1.75												.83	539
238	School Rd., Atikokan								.40	20			1530		
239	Sleeman-Bergland Rd.													3.409	2884
240	Sleeman-Bergland Rd. Minahico-Morson Extension		1.0	66			.67	16	1.03	20			3630	1.64	1055
							1.37	33							
241	Spohn Trunk Road	8.0										.003	10	1.70	1055
242	Spohn River Road	1.0					1.0	16	1.524	20			1485		
243	Stratton Con. School Route, Morley Twp		2.09	66			1.0	33	2.09	20				2.18	1407
244	Stratton-Sifton Road and North Br. Rd.	2.25	.50	60			1.0	20	1.46	20	.01	16	11082	3.51	2246
245	Tank Road		2.0	66			.75	20	.16	30			7525	4.28	2789
246	West Branch Road, Spohn Township		2.0	66			.50	30	.75	20					
							1.70	30	.25	20			1555		
							1.25	12							
247	Wilson Creek Road	2.75					2.75	20	2.25	re					
248	Worthington-Atwood Boundary						.50	24	2.0	re					
249	Worthington-Dilke Boundary	.50							.42						
	SWASTIKA-ELK LAKE DISTRICT.														
250	Barry Hollinger Mine Road												3700	.5	480
251	Charlton-Elk Lake Rd								3.14	re			298		200

NORTHERN DEVELOPMENT BRANCH—*Continued.*

YEAR ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts *			Bridges		REMARKS
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description	
					1					220
			6							221
			18							222
			250		3				175 c.yd. clay fill.	223
			2179		36			2	Repaired.	224
					5				2212 c.yd. earth fill.	225
					2					226
					1					227
			138		1				800 c.yd. earth fill.	228
					1				300 c.yd. clay fill.	229
			3.0		1					230
					1					231
					2					232
					1					233
			1		1					234
			6						200 c.yd. earth fill.	235
			27		1				60 c.yd. earth fill.	236
					1					237
			100		2				110 c.yd. clay fill.	238
			40		5				25 c. yd. earth excav.	239
										240
			78						2 c.yd. earth fill.	241
					6				200 c.yd. clay fill.	242
					1				300 c.yd. earth fill.	243
			32		4					244
			8.5		6			2	Repaired.	245
								1	12' span.	246
					2				200 c.yd. earth fill.	247
										248
					1					249
	1160	1			15					250
									409 c.yd. rock and clay fill.	251

DEPARTMENT OF LANDS AND FORESTS

ANNUAL REPORT OF WORK DONE,

		Side Brush- ing	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Lay		Ditch- ing	Gravelling	
			L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	L mls.	Yards used
	SWASTIKA-ELK LAKE DIST.— <i>Continued.</i>														
252	Dane-LarderLakeRd.	1							8	re					
253	Dane-LarderLakeRd. Branch to Argonaut Mine											.01	12		900
254	Elk Lake-Gowganda Road	15							6	re			2574		2725
255	Elk Lake-Matache- wan Road	3.5	1 3.25	30 66	1 3.25	30 66	5.15 3.25	16 33	.25	20				150	
256	Goodfish Road						.15	26	.7	24				302	.5 497
257	Latchwood-Cochrane Road	.5	1	66	1	66	.28 .06	15 50	5.3 15.65	re 18		.18	10	13200 7553	cleaned 3.75 3067
							1.0 .1	26 66		to 26					
258	Marquis Township Roads		1.8 .5	66 26	.63 .5	66 26	.5	26	.5	18				145	
259	Milberta-Elk Lake Road	4.5	1.7	66	.51	20	.8 1.14	20 40	3.8 9.7	24		.6	12	24274	.3 5. 260 3330
260	Swastika-Kirkland Road, and exten- sion through Lebel Township								.11	22		.04	16	100	2201
	THUNDER BAY DIST.														
261	Arthur Street Road	9.75												3432	3.9 4153 963
262	Blake Township		.75 .2	40 66			.5	26	3.5	20				760	.25 246
263	Cloud Bay Road		.60	66			.60	26	.50	24				3990	.25 222
264	Conmee Township	2.7					1.06	12	2.25	24				3069	1.06 922
265	Current River Road	1.35					1.75	13	1.75	24				7885	1.0 930
266	Dawson Road	.25							2.0	24					2.2 2231.5 1055
267	Dawson Road Lots Township		.02	40			.02	26	.04	20				150	
268	Dog Lake Road														150
269	Dog River Road	.25													1.0 600
270	Dona-Finmark Road		.5	66			.75	26	1.25	24				560	
271	Dorion Township	1.00							2.0	24				3556	1.65 1511 120
									.75	re					
272	Forbes Township		1.75	40	.125	26	.50	26	.125	24				50	
273	Gillies Township						.5	26	.5	24				140	3.0 2826
274	Gillies-Lybster Bdy	.50							.50	re					1.0 1032
275	Gillies-Scobie Bdy	.09							.16	16					
									.5						
276	Gorham Township	1.25	1.25 .125	40 50			2.625 .20	26 24	1.725 2.0	24 re				4708	2.675 2127
			2.00	66											
277	Gorham-McIntyre Boundary								.50	re				60	214

NORTHERN DEVELOPMENT BRANCH—*Continued.*

YEAR, ENDING 31ST OCTOBER, 1923.

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
			5	15	2			4	Repaired.	1343 c.yd. sand surfacing. 86 c.yd. stone in swamps.	252
	480									General repairs.	253
			12	12	4			1	18' span.	4022 c.yd. stone fill.	254
								1	16x46	85 c.yd. rock excav.	
					4			1	Repaired.		
								1	16x18	1932 c.yd. cut and fill.	255
					7			1	12x18	4375 c.yd. filling.	
			.75	4.6	31	8	29	1	20' span.	27 c.yd. rock excav.	256
								1	Trestle, 12-16' bents.	836 c.yd. rock excav. 1192 c.yd. rock surfacing in swamps. 6265 c.yd. filling.	257
											258
			5	4	1		44	1	16' span.	8154 c.yd. filling.	259
								1	44' span.		
								1	74' long.		
								2	30x20		
1406	2647				12			17	2	Repaired.	260
					2	repaired					
								8			261
			68.75	16.0							
					11					300 c.yd. cut and fill.	262
				.50	3						263
			2	4.64	5	5				628½ c.yd. cut and fill.	264
					2	repaired					
					10					300 c.yd. cut and fill.	265
			12	13	12	repaired		2	Repaired.		266
					1						
				3	4	repaired					267
					2						268
					7					250 c.yd. cut and fill.	269
				2.0	17					570 c.yd. cut and fill.	270
									1 30' span.		271
									1 30' span.		
									1 45' span.		
					2					75 c.yd. cut and fill.	272
					1	4				500 c.yd. cut and fill.	273
					5					100 c.yd. cut and fill.	274
			1		4	repaired					275
				4.375	14	3		1	24' span.	460 c.yd. cut and fill.	276
				1.50	3					75 c.yd. loose rock re- moved.	277

NORTHERN DEVELOPMENT BRANCH—Continued.

YEAR ENDING 31ST OCTOBER, 1923

Crushed Rock			Drag- ging Miles	Gen- eral Rep'rs Miles	Culverts			Bridges		REMARKS	
Yds. crush- ed	Yds. haul- ed	L cov- ered			Wood	Stone or Conc.	Metal	No.	Description		
.....	2.00 3.125	4 7 12	.....	.....	1	20' span.	.....	278
.....	510 c.yd. cut and fill.	279 280
.....	20	4.0	.....	5.	.....	.....	.....	.....	281
.....	1010	47.8	.....	.....	5	1	Repaired.	293 c.yd. gravel fill.	282
.....	11	10	.....	1	.....	.....	.....	550 e.yd. cut and fill.	283
.....	9	.....	.....	1	12' span.	450 c.yd. cut and fill.	284
.....	5	.....	.....	1	16' span.	200 c.yd. cut and fill.	285
.....	13	.....	.....	1	14' 6" span.	183 c.yd. cut and fill.	286
.....	1	Repaired.	700 c.yd. cut and fill. 70 c.yd. fill.	287
.....	1	.....	.....	.....	.....	.....	288
.....	25.5	135	.....	.....	1	16' span.	21065 c.yd. cut and fill.	289
.....	1	108' trestle.	450 c.yd. rock cut. 455 c.yd. rock fill. 1086 c.yd. gravel fill.	.....
.....	161.25	18	.....	6	.....	1	22' reinforced concrete.	115.5 c.yd. gravel fill. 1100 c.yd. fill.	290
.....	1	1	.....	.....	.....	1	100' span.	1300 c.yd. cut and fill. 2000 c.yd. cut and fill.	291
.....	3	.....	.....	.....	.....	200 c.yd. rock in cribs. 50 c.yd. cut and fill.	292
.....	6	1.625	.....	.....	.....	.....	.....	1250 c.yd. cut.	293
.....	21	.....	.....	.....	.....	.....	294
.....	3	.....	.....	.....	.....	.....	295
.....	2	.....	.....	.....	.....	.....	296
.....	23	.....	.....	1	10' span.	1802 c.yd. cut and fill.	297
.....	1	45' span.	250 c.yd. fill.	.....
.....	5	.....	.....	.....	.....	1264 c.yd. cut and fill.	298
.....	625	6	.....	.....	.....	.....	40 c.yd. rock fill.	299
.....	5	.....	.....	.....	.....	950 c.yd. cut and fill.	300
.....50	4	.....	.....	1	14' span.	.....	301
.....	1.5	36	15	.....	.....	.....	3545 c.yd. cut and fill.	302
.....	37	8	.....	.....	.....	600 c.yd. cut and fill.	303
.....	37.5	12	.....	.....	.....	.....	.....	50' Rip Rapping 3' 0" high	304
.....	5.	26	.....	.....	1	24' span.	675 c.yd. cut and fill.	.....
.....	1	16' span.	.....	.....
.....	1	8' span.	.....	.....
76790	83139	32.78	8534.37	870.845	2169	251	754	105	New. 37 Repaired.	.....	.....

Appendix No. 40

NORTHERN DEVELOPMENT BRANCH

SECTION 1 (D)

FARMS

Under this sub-section expenditures were made in connection with the purchase of two additional town lots in the town of New Liskeard, as additions to complete the demonstration farm there; and also in the payment of accounts incurred for the erection of additional farm buildings, fences, and other improvements upon the farm. The property is now being operated as a demonstration farm by the Department of Agriculture.

The experimental farm at Hearst has also been maintained by that Department, and payments were made by the Northern Development Branch in respect of supplies for seeding land, fencing, and labour.

The total expenditure on these accounts was \$11,036.39.

FIRE RELIEF COMMITTEE ACCOUNTS

The Northern Ontario Fire Relief Committee, constituted after the fire in Northern Ontario on October 4, 1922, found that the amount of the contributions they had received from various sources was not sufficient to meet the requirements. Representations were made by the Relief Committee to the Government as a result of which it was decided that money be provided out of the Northern Development fund, under the provisions of Section 1 (d) of the Northern Development Act, to be used for the payment of accounts incurred by the Relief Committee, after being audited and passed by the Department as represented by the Northern Development Branch. The accounts cover materials, supplies, feed and other necessities of the settlers. Further provision was made for the payment of accounts incurred for similar objects in connection with the fire near Norembega, east of Cochrane, in 1923. The amount expended under these heads was \$282,060.99, the accounts being rendered to the Fire Relief Committee, approved by them and forwarded to the Northern Development Branch, where they were audited prior to payment.

In the emergency after the fire of 1922, a considerable quantity of army equipment was loaned by the Department of Militia and Defence for the immediate use of the fire sufferers. As living accommodation, equipment and other supplies became available for the fire sufferers, the articles so loaned by the Militia Department were returned. It was found, however, that a considerable quantity of the equipment had become unfit for military use and was not acceptable for return to stores and was, therefore, charged by the Militia Department against the Fire Relief Committee. The account amounted to \$73,742.32; and provision was made to meet this charge out of the Northern Development fund.

Payment was made of a portion of the account amounting to \$15,748.28, the remainder being left over to be taken care of either by the replacement of the articles by repurchasing, or by cash remittance.

SAWMILLS

In order to provide the fire sufferers with sawn lumber from local supplies, two portable sawmills were provided by the Northern Development Branch, operated in the vicinity of New Liskeard. The cost of these mills, together

with their operating expenses, amounted to \$4,503.55. The work was under the immediate supervision of the local Crown Timber Agent.

SECTION 1 (E)—CREAMERY

The New Liskeard Creamery, which was operated by a manager under the Northern Development Branch, was taken over on the 27th of March last by the Department of Agriculture. Prior to that time the expenditures in connection with the operation of the institution amounted to \$3,975.63, which was paid by the Branch out of the Northern Development fund.

SECTION 2. (1)—SEED GRAIN

In accordance with the practice adopted in 1915 and continued during succeeding years, seed grain was provided by the Northern Development Branch for distribution to those settlers and farmers in Northern and Northwestern Ontario who wished to take advantage of the opportunity of securing a sound quality of seed in return for lien notes secured upon the property of the purchaser. The total quantities of seed required showed a considerable reduction as compared with those of the previous year, owing to more favourable crop conditions prevailing in the season of 1922. Exclusive of the supplies for the Temiskaming fire area there was supplied 4,206 bushels of oats, 306 bushels wheat, and 468 bushels barley. The seed was all purchased in Ontario; and wherever supplies of the requisite quality were available, preference was given to the purchase of local stocks. The distribution was made as formerly under the immediate superintendence of the District Representatives of the Department of Agriculture, or officers of the Northern Development Branch.

The situation in the Temiskaming fire area in the district of Haileybury with reference to seed requirements was exceptional, and special measures were taken in consequence. The Fire Relief Committee, who had been active in supplying the needs of the fire sufferers in other respects, did not extend their operations to the supplying of seed and this work was, therefore, performed under the Northern Development Act. Whereas in other districts throughout the North seed was limited to oats, wheat and barley, the requirements in the fire area necessitated the supply, in addition, of red clover, 12,554 pounds; alsike, 7,660 pounds; timothy, 46,690 pounds; mixed seed, 4,400 pounds; peas, 1,454 bushels. This was required to reseed cleared land that had already been seeded but burned over, and in addition, to seed down additional land cleared by the fire. Oats were supplied to the amount of 10,914 bushels; wheat, 1,200 bushels and barley, 1,522 bushels. The terms granted to the fire sufferers were somewhat more liberal than those usually applied, the lien notes instead of becoming due on the 1st of December, 1923, were extended to the 1st of March, 1924. The mixed grass seed purchased for this area was obtained in Northwestern Ontario. The whole of the local arrangements for the purchase and distribution to the fire sufferers were carried out by the district Agricultural Representatives who received also the co-operation of the Superintendent of the Demonstration Farm at New Liskeard.

The total expenditure incurred in the purchase and distribution of the seed amounted to \$35,698.75.

SECTION 2 (1)—AGRICULTURAL IMPLEMENTS FOR FIRE SUFFERERS

One of the consequences of the fire in the vicinity of Haileybury on October 4th, 1922, was that many of the farmers lost the whole of their agricultural implements along with their other property.

The question of replacing the implements was discussed by the Honourable the Minister with the Ontario Fire Relief Committee, and on the 7th of March, 1923, it was decided that those who had lost farm implements in the fire should make application to the Fire Relief Committee to replace their loss. The Committee was then to pass upon the applications and transmit those approved to the Northern Development Branch. The Branch would then order the implements to be supplied. The terms ultimately decided upon for the sale of these implements to the fire sufferers were that the cost price of the articles was divided into three equal amounts, for which promissory notes were signed by the purchaser. These notes were made payable respectively on the 1st of October, 1924, 1925 and 1926 with interest at the rate of 6 per cent. per annum from the 1st of October, 1923, and under the authority of Section 2 (1) of the Northern Development Act, 1918, a lien was placed against the land of the purchaser.

The implements to be supplied included seed drills, plows, disc harrows, scufflers, smoothing harrows, mowers, hay rakes, binders and wagons. Negotiations were entered into with the principal manufacturers of these implements in Ontario, with the result that satisfactory arrangements were made for the prompt shipment of the various implements on favourable terms.

In all, some sixty varieties of the various types of implements were asked for by the fire sufferers, and as the applications were received and the promissory notes prepared and signed the shipments were promptly made by the various companies. Very valuable co-operation and assistance was rendered by the officials of the T. & N. O. in the handling of the distribution.

The total number of implements ordered was 655, purchased from nine firms. Two hundred and eighteen farmers took advantage of this arrangement as follows:

Township	No. of Purchasers	Amount
Armstrong.....	14	\$3,070 56
Beauchamp.....	5	1,532 00
Brethour.....	12	3,090 31
Bryce.....	3	647 63
Bucke.....	19	3,360 05
Cane.....	3	379 79
Casey.....	21	7,044 16
Dack.....	24	4,600 15
Dymond.....	3	660 21
Evanturel.....	15	2,514 98
Firstbrook.....	1	94 18
Harley.....	21	3,532 29
Harris.....	4	734 06
Henwood.....	9	1,934 24
Hilliard.....	40	8,041 05
Hudson.....	2	964 65
Ingram.....	3	393 60
Kerns.....	7	848 19
Lorrain.....	2	295 35
Robillard.....	6	1,676 99
Savard.....	2	341 22
Sharpe.....	1	161 63
Tudhope.....	1	35 47
	218	\$45,952 76

The cost of implements purchased was \$46,771.37; the total amount of the promissory notes given in exchange was \$45,952.76, and in addition \$738.89 was received in cash, making a total sum realized of \$46,691.65. One of the chief difficulties encountered in this work was the limited time available from the date when the decision was made to provide the implements, and the time when the articles were required for seeding; but by giving preference in shipping

to the implements most urgently required, the necessities of the case were met. The provision of these implements proved to be a very valuable help to the farmers of the fire stricken area.

SECTION 2 (4)—SCHOOLS

Under this subsection expenditures were made out of the Northern Development fund in connection with the completion of the alterations and extension of the former Stock Judging Pavilion at New Liskeard, situated on the lands of the Demonstration Farm, for the purpose of a Continuation School. This work was commenced in the previous financial year.

The expenditure for the year ending 31st October, 1923, amounted to \$32,137.77.



Road-making in Peterborough County.

SUMMARY OF EXPENDITURE

FOR THE TWELVE YEARS ENDED 31ST OCTOBER, 1923

NORTHERN AND NORTHWESTERN ONTARIO DEVELOPMENT FUND

SECTION	Summary of Expenditure 23rd May 1912, to 31st Oct., 1922	Expenditure for year ended 31st October, 1923	Total Expenditure to 31st October, 1923
Section 1 (a) Works and Improvements.....	\$2,100 00		\$2,100 00
Section 1 (b) Roads.....	9,972,725 31	\$2,739,863 58	12,712,588 89
Section 1 (d) Farms.....	110,246 53	11,036 39	121,282 92
Section 1 (d) Assistance of Settlers, Feed.....	117,898 07	6,254 51	124,152 58
Section 1 (d) Assistance of Settlers, Fire Relief.....		282,060 99	282,060 99
Section 1 (d) Assistance of Settlers, Sawmills.....		4,503 55	4,503 55
Section 1 (e) Creamery and Grain Elevators..	57,150 53	3,975 63	61,126 16
Section 2 (1) Seed Grain.....	227,787 47	35,698 75	263,486 22
Section 2 (1) Agricultural Implements.....		46,771 37	46,771 37
Section 2 (2) Cattle Purchase Account.....	21,617 99		21,617 99
Section 2 (4) Schools and other Public Bldgs..	17,353 85	32,137 77	49,491 62
Section 2 (6) Fire Protection.....	3,773 45		3,773 45
Returned Soldiers' and Sailors' Land Settlement Act, 1917.....	1,181,082 51	2,832 28	1,183,914 79
	\$11,711,735 71	\$3,165,134 82	\$14,876,870 53
Settlers' Loan Account Amending Act, 1916...	913,534 93	167,308 92	1,080,843 85
	\$12,625,270 64	\$3,332,443 74	\$15,957,714 38

STATEMENT OF EXPENDITURE

UNDER NORTHERN AND NORTHWESTERN ONTARIO DEVELOPMENT ACTS, 1912 AND 1915, AND AMENDMENTS

FOR THE YEAR ENDED 31ST OCTOBER, 1923

Districts and Sections	Expenditure, year ended 31st October, 1923
Roads:	
1. Kenora.....	\$105,873 55
2. Dryden.....	124,967 16
3. Port Arthur.....	104,639 20
4. Fort William.....	127,186 46
5. Rainy River.....	121,038 77
6. Sault Ste. Marie (including Soo-Sudbury Trunk Road).....	219,711 86
7. St. Joseph's Island (and Pine Island).....	16,702 75
8. Sudbury.....	129,133 89
9. Manitoulin Island (and Espanola Road).....	162,489 12
10. Nipissing.....	158,433 75
11. Parry Sound.....	171,355 08
12. Muskoka.....	203,351 30
13. Renfrew.....	35,047 61
14. Temiskaming and Cochrane.....	1,027,032 05
15. General Administration.....	32,901 03
	\$2,739,863 58
16. Farms.....	11,036 39
17. Assistance of Settlers—Feed Shortage.....	6,254 51
18. “ “ Fire Relief.....	282,060 99
19. “ “ Sawmills.....	4,503 55
20. Creamery.....	3,975 63
21. Seed Grain.....	35,698 75
22. Agricultural Implements.....	46,771 37
23. Schools and other Public Buildings.....	32,137 77
24. Returned Soldiers' and Sailors' Settlement Account.....	2,832 28
25. Settlers' Loan Account.....	167,308 92
	\$3,332,443 74

NORTHERN DEVELOPMENT BRANCH

STATEMENT OF EXPENDITURE, YEAR ENDED 31ST OCTOBER, 1923

Making of Roads, Section 1 (b):

Bruce, A. E. D., Secretary and Accountant, salary.....	\$3,450 00	
Sinton, James, Road Engineer, salary.....	2,700 00	
Beardall, F. G., Principal Clerk, salary.....	2,300 00	
Lawer, W. L., Senior Account Clerk, salary.....	2,100 00	
Reid, A., Map Draughtsman, salary.....	1,800 00	
Dicker, C. L., Clerk, salary.....	1,500 00	
Fleming, Miss E., Clerk, salary.....	1,300 00	
Carefoot, Miss O., Clerk-Stenographer, salary, 7¾ months.	712 51	
		\$15,862 51
Wages.....	\$1,737,060 82	
Contracts.....	181,675 11	
Supplies, Equipment and Services.....	805,265 14	
		2,724,001 07
		\$2,739,863 58

Advancement of Settlement and Colonization, Section 1 (d):

Wages.....	\$1,446 98	
Purchase of Land.....	125 00	
Supplies, Stock, Fencing and Equipment.....	9,464 41	
		11,036 39

Assistance of Settlers—Feed Shortage, Section 1 (d):

Feed, Freight, Services and Disbursements.....	6,254 51
--	----------

Assistance of Settlers—Fire Relief, Section 1 (d):

Material, Provisions, Supplies, Freight, Services and Disbursements.....	282,060 99
--	------------

Assistance of Settlers—Sawmills, Section 1 (d):

Wages.....	\$2,234 05	
Cost of Mills and Supplies.....	2,269 50	
		4,503 55

Creamery, New Liskeard, Section 1 (e):

Wages.....	\$1,662 09	
Supplies, Equipment, Freight and Expenses.....	2,313 54	
		3,975 63

Seed Grain, Section 2 (1):

Seed, Freight, Services and Disbursements.....	35,698 75
--	-----------

Agricultural Implements, Section 2 (1):

Cost of Implements, Freight and Disbursements.....	46,771 37
--	-----------

Schools and other Public Buildings, Section 2 (4):

Continuation School, New Liskeard, Contracts for erection, heating, etc.....	\$24,765 94	
Material and Supplies.....	7,371 83	
		32,137 77

Returned Soldiers' and Sailors' Land Settlement Act, 1917:

Services, Rentals and Disbursements.....	2,832 28
--	----------

\$3,165,134 82

Settlers' Loan Account Amending Act, 1916:

Dane, F., Commissioner, salary.....	\$5,000 00	
Kennedy, W. K. P., Accountant, salary.....	2,700 00	
Crawford, G., Stenographer.....	1,050 00	
Jack, F. M., Stenographer.....	832 00	
		\$9,582 00

Net amount of loans issued.....	\$156,410 00	
Expenses.....	1,316 92	
		157,726 92

167,308 92

\$3,332,443 74

NORTHERN DEVELOPMENT BRANCH

STATEMENT OF REVENUE FOR THE YEAR ENDED 31ST OCTOBER, 1923

<i>Section 1 (b), Roads:</i>	
Sale of Supplies, Camp Buildings and Equipment; Refunds.....	\$2,649 29
<i>Section 1 (d), Assistance of Settlers:</i>	
Cash Sales of Feed and Notes retired.....	24,052 69
<i>Section 2 (1), Seed Grain:</i>	
Cash Sales and Notes retired.....	20,131 43
<i>Section 2 (1), Agricultural Implements:</i>	
Cash Sales and Notes retired.....	1,288 10
<i>Section 2 (2), Purchase of Cattle Account:</i>	
Payment on account of Note.....	15 00
<i>Clause 5 (1-12), Soldiers' Settlement Account:</i>	
Note retired (Kapuskasig Colony).....	19,859 11
Sale of Buildings (Shackleton Colony).....	
	\$67,995 62
<i>Settlers' Loan Account:</i>	
Payments on account of loans.....	110,956 37
Total Revenue under all heads, 1923 account.....	\$178,951 99

NORTHERN DEVELOPMENT BRANCH

ASSETS, 31ST OCTOBER, 1923

Cash Balances unexpended: Roads, Farms, Fire Relief, etc.....	\$135,362 49	
Soldiers' Settlement.....	14,713 43	
		\$150,075 92
Settlers' Loan Account.....		11,590 00
Seed Grain, Notes outstanding.....		94,291 58
Assistance of Settlers, Notes outstanding.....		62,152 12
Implements, Notes outstanding.....		45,405 47
Cattle Purchase, Notes outstanding.....		3,307 16
Soldiers' Settlement, Notes outstanding.....		32,215 10
Settlers' Loans outstanding.....		694,150 28
		\$1,093,187 63

CONTINGENT ASSETS

Roads—Buildings, Plant, Equipment, Machinery, Motors, Tractors, etc.....	\$218,202 91
	\$1,311,490 54

RECORD OF CORRESPONDENCE

Letters received.....	11,386
Letters mailed.....	13,449
Circulars mailed (Seed Grain).....	1,620
	15,069
Expenditure on Postage.....	\$906 10
November 15th, 1923.	

Appendix No. 41

46 RICHMOND STREET WEST, TORONTO,

19th December, 1923.

To the Honourable the Minister of Lands and Forests.

DEAR SIR,—It affords me pleasure to present herewith a report of the business of this department to the end of October, 1923.

The Department continues to give careful consideration to each application and advances money on the basis of the valuation of the actual improvements that have been made to the land.

It is a pleasure to be able to refer to the manner in which interest payments have been made, which from the accompanying statement you will observe is 90.32 per cent. of interest due.

The Department frequently receives advice that the loans of this department have been a great help to the development of the property on which the loans have been granted, and the object seems to be that the settler is desirous of getting sufficient land developed to enable him to carry stock.

With reference to the loan granted to the Kenora Dairy Company, you will observe from the report that this company failed, and the Department anticipates that there will be at least a loss of 50 per cent. in connection with this loan.

All of which is respectfully submitted.

F. DANE,
Settlers' Loan Commissioner.

MEMORANDUM OF LOANS TO SETTLERS TO OCTOBER 31ST, 1923

Applications

Total number of applications received.....	4,485
Total amount applied for.....	\$1,765,230 00
Average per application.....	393 58
Amount applied for under approved applications.....	1,212,745 00

Loans

Number of loans issued.....	2,960
Equal to 65% of applications.....	
Amount granted.....	\$973,110 00
Equal to 55% of total amount applied for and equal to 80% of total amount applied for under approved applications.....	
Average loan.....	\$328 75
Total acreage covered by liens.....	450,492
Acreage improved land.....	67,765
Equal to 15% of total acreage.....	
Average loan per acre on total acreage.....	\$2 16
Average loan per acre on acreage improved land.....	14 36

MEMORANDUM OF LOANS TO CREAMERIES AND OTHER LIKE ASSOCIATIONS TO OCTOBER 31ST, 1923

Applications and Loans

The Sudbury Co-operative Creamery Co., Ltd.....	\$24,000 00
The Kenora Dairy Co-operative Association, Ltd.....	13,000 00
Producers' Co-operative Creamery Co., Ltd., Lavallee, District of Rainy River...	3,500 00
Total.....	\$40,500 00

Note.—The Sudbury Co-operative Creamery Company and the Producers Co-operative Creamery Company of Lavallee are in active operation and have promptly paid the amounts falling due on their loans. The Kenora Dairy Co-operative Association failed to operate successfully and went into liquidation on March 8th, 1922, having failed to pay any portion of their loan or interest.

The land was deeded to the Crown on December 30th, 1922, and registered in Land Titles Office at Kenora on January 2nd, 1923, as No. 5882; also Bill of Sale covering chattels on January 3rd, 1923, as No. 919, by the Clerk of the District Court at Kenora.

The standing of the account is as follows:—

Principal.....	\$13,000 00
Interest as at June 1st, 1923.....	1,818 35
Total.....	\$14,818 35

The Department sold a quantity of cans to the Sudbury Creamery Company for which \$225.00 was received, leaving balance of amount outstanding to be \$14,593.35.

REPAYMENTS

On Account of Interest

	Accrued Interest Due	Interest Received	Per Cent.
Loans to settlers.....	\$153,946 90	\$139,045 34	90.32
Loans to creameries, etc.....	5,188 59	3,595 24	69.29

On Account of Principal

	Payments on Principal Due	Payments on Principal Received	Per cent.
Loans to settlers.....	\$374,268 83	\$325,721 29	87.02
Loans to creameries, etc.....	233 34	10,233 34	.....

TOTAL

	Payments Due	Payments Received	Per cent.
Loans to settlers.....	\$528,215 73	\$464,766 63	87.98
Loans to creameries, etc.....	5,421 93	13,828 58	.....
Totals.....	\$533,637 66	\$478,595 21	89.68

DETAILS OF LOANS ISSUED AND OUTSTANDING

District	Issued		Outstanding	
	No. of Loans	Amount	No. of Loans	Unpaid Principal and Accrued Interest
Algoma.....	96	\$32,260 00	83	\$27,540 75
Kenora.....	301	111,220 00	239	82,756 08
Manitoulin.....	13	5,250 00	12	4,645 00
Nipissing.....	167	59,495 00	150	45,747 44
Rainy River.....	228	75,275 00	175	45,134 97
Sudbury.....	175	89,060 00	158	69,210 70
Temiskaming.....	1,288	413,020 00	951	266,370 91
Thunder Bay.....	695	228,030 00	583	152,735 43
Totals.....	2,963	\$1,013,610 00	2,351	\$694,150 28

Appendix No. 42

REPORT OF THE FORESTRY BRANCH, 1923

SIR,—The report of the work of this Branch for the year ending October 31st, 1923, is given under the sections of Forest Fire Protection, Forest Investigations, Reforestation and Forest Pathology.

I.—FOREST FIRE PROTECTION

(1) *Legislation*

The "Permit Area," as designated in an Order-in-Council dated the 18th day of May, 1917, was by an Order-in-Council dated the 1st day of June, 1923, extended to cover the entire Province within the Fire Districts. The benefits derived from this extension were, for the balance of the season, immeasurable.

Forest protection requires the unstinted support of the general public. The individual in the woods does not accept sufficient responsibility as a citizen. The result is, in many instances, gross carelessness and indifference in causing fires, and flat refusal to assist in fighting them.

The exceptionally dry periods experienced this past season, and the resultant serious fire situation, emphasized more strongly than ever the need for jail sentences as an alternative to a fine for certain infringements of the Act.

The failure on the part of the general public to give co-operation towards the suppression of a forest fire, not only makes compulsory fire-fighting extremely advisable, but points to a crying need for legislation placing the onus of proof for responsibility of a fire on the person occupying the land on which the fire occurs.

The appointment of certain superior field officers as justices of the peace for the purpose of taking cognizance of offences against the provisions of the Act or the Regulations is also desirable.

(2) *Organization and Personnel*

The Western Inspectorate, comprising the districts of Kenora, Rainy River, and Thunder Bay as far east as White River on the Canadian Pacific Railway, and Tashota and Caramat on the Canadian National Railways, was under the supervision of one Forest Supervisor, with headquarters at Port Arthur. This Inspectorate was divided into seven Chief Ranger Districts, namely Kenora, with headquarters at Kenora; C.G.R. Western, which consisted of a supervisory patrol over the Canadian National Railways from Fort William to Ophir, headquarters at Sioux Lookout; C.G.R. Central, headquarters at Armstrong; Rainy River, headquarters at Fort Frances; Thunder Bay, headquarters at Port Arthur; Nipigon, headquarters at Macdiarmid; and Longlac, headquarters at Longlac.

The Cochrane Inspectorate, comprising the territory along the northern line of the Canadian National Railways from the Quebec boundary west to the eastern boundary of Nipigon Reserve and extending north to the Albany River and James Bay, was supervised by one Fire Inspector with headquarters at Cochrane. This area was divided into eight Chief Ranger Districts as follows: C.G.R. Eastern, headquarters at Grant; Hearst, headquarters at Hearst; Kapuskasing, headquarters at Kapuskasing; Cochrane, headquarters at Cochrane; Abitibi, headquarters at Lowbush; Matheson, headquarters at Matheson; Timmins, headquarters at Timmins; New Liskeard, headquarters at New Liskeard.

The old Sudbury Inspectorate, which included the territory adjacent to the Canadian Pacific Railway from Mattawa and Bigwood to Sault Ste. Marie and White River; the southern line of the Canadian National Railways from North Bay and Pickerel River to Jellicoe; the Algoma Central and Hudson Bay Railway from Sault Ste. Marie to Oba, and the Temiskaming and Northern Ontario Railway from North Bay to Elk Lake, was divided into the Soo and Sudbury Inspectorates, with the territory along the Canadian National Railways from Caramat to Jellicoe being added to the Western Inspectorate.

The Soo Inspectorate, which extended from Cutler to Sault Ste. Marie, and from Chapleau to White River on the Canadian Pacific Railway; from Dunrankin to Caramat on the southern line of the Canadian National Railways; and from Sault Ste. Marie to Oba on the Algoma Central and Hudson Bay Railway, was under the direct charge of a District Forester, with headquarters at Sault Ste. Marie, who was assisted by one Forestry Assistant and one Fire Inspector. The six Chief Ranger Districts were Hornepayne, with headquarters at Hornepayne; Oba, headquarters at Oba; Franz, headquarters at Franz; A.C.R., headquarters at Sand Lake; Mississagi South, headquarters at Kendiogami Lake; Blind River, headquarters at Blind River.

The Sudbury Inspectorate extended from Mattawa and Bigwood to Cutler and Chapleau on the Canadian Pacific Railway; from North Bay and Pickerel River to Dunrankin on the southern line of the Canadian National Railways; from North Bay to Elk Lake on the Temiskaming and Northern Ontario Railway; and from Sudbury to Little Current on the Algoma Eastern Railway. A District Forester with headquarters at Sudbury was in direct charge of the area, and was assisted by one Forestry Assistant and one Fire Inspector. Another Forester was placed in charge of each of the Sudbury and North Bay Chief Ranger Districts, with headquarters at Sudbury and North Bay respectively, each being directly responsible to the Forester in charge of the Inspectorate. There were ten Chief Ranger Districts; Foleyet West, headquarters at Elsas; Foleyet East, headquarters at Gogama; Mississagi West, headquarters at Chapleau; Mississagi East, headquarters at Biscotasing; Timagami West, headquarters at Mattagami Post; Timagami East, headquarters at Timagami; Webbwood, headquarters at Webbwood; Sudbury, headquarters at Sudbury; North Bay, headquarters at North Bay.

The organization in the territory south of Lake Nipissing and within the Fire District, was the same as in 1922, there being three Inspectorates—Georgian Bay, Algonquin, and Trent, each in charge of a District Forester, assisted by a Forestry Assistant.

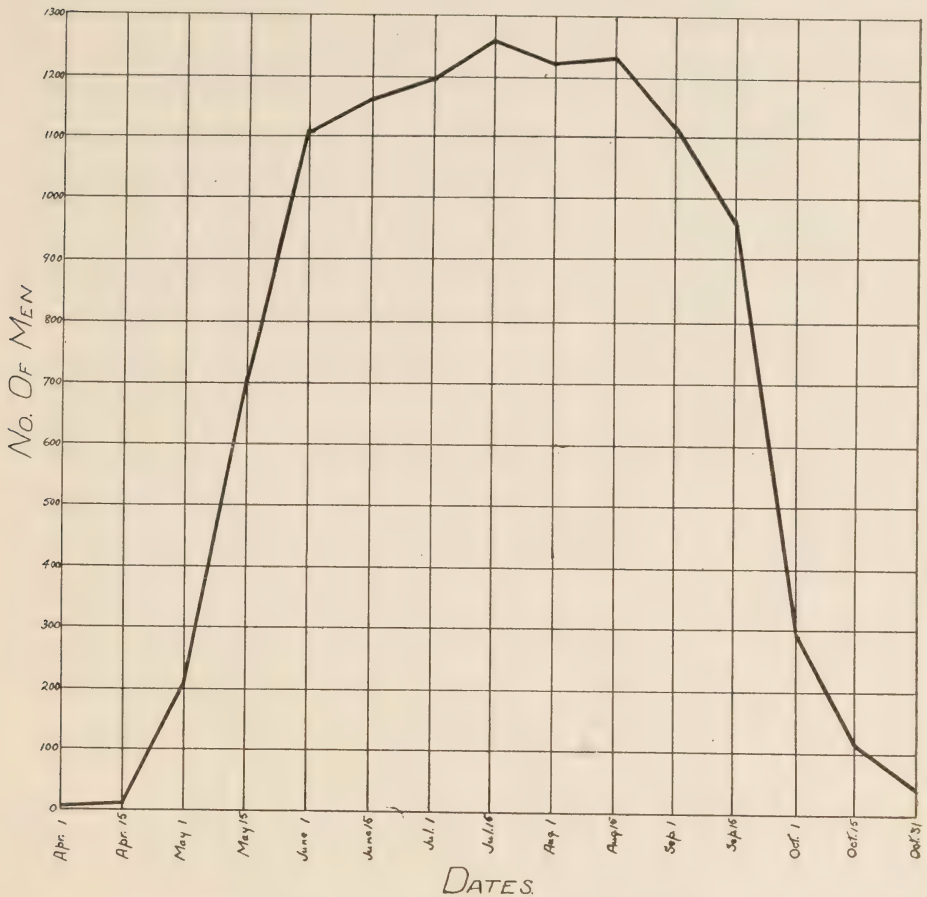
The Georgian Bay Inspectorate, with headquarters at Parry Sound, comprised the area along the Canadian Pacific Railway from Lovering to Bigwood, and along the Canadian National Railways from Rathburn to Pickerel River, Rama to North Bay, and Depot Harbour to Ravensworth. This area was divided into two Chief Ranger Districts, Georgian Bay West with headquarters at Parry Sound, and Georgian Bay East with headquarters at Powassan.

The Algonquin Inspectorate, with headquarters at Pembroke, included the territory from Pembroke to Mattawa on the Canadian Pacific Railway, and from Pembroke to North Bay and Douglas to Ravensworth on the Canadian National Railways. There were two Chief Ranger Districts, Algonquin North with headquarters at Pembroke, and Algonquin South with headquarters at Brule Lake.

The Trent Inspectorate consisted of the balance of the Fire District, the area extending from Kinmount and Bannockburn to Wallace on the Canadian

NUMBER OF MEN ON TEMPORARY STAFF AT DIFFERENT PERIODS.

1923



National Railways, and from Addington to Maberly, and Oconto to Ashdod on the Canadian Pacific Railway. There was one Chief Ranger District, Trent, with headquarters at Dacre.

The total field supervisory staff for the seven Inspectorates, which were divided into thirty-six Chief Ranger Districts, consisted of twelve Foresters, one Forester Supervisor, three Fire Inspectors, thirty-six Chief Rangers, and eighty-three Deputy Chief Rangers. This allowed direct supervision of one Chief or Deputy Chief Ranger to every ten rangers.

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 24; May, 692; June, 1,160; July, 1,251; August, 1,218; September, 797; October, 133. The largest number of men on duty at any one time, including 119 Chief and Deputy Chief Rangers, was 1,267.

Including the Chief and Deputy Chief Rangers there were 205 men on duty on the first day of May. By the 15th of the month the number had increased to 699, and by the first of June to 1,104. On the 15th of June the total number was 1,166; on the first of July, 1,198; on the 15th of July, 1,257; on the first of August, 1,220; on the 15th of August, 1,223. In some of the outlying dis-

tricts it was possible to discontinue some patrols the last of August which reduced the number on duty the first of September to 1,115. Men were taken off duty from then on as conditions permitted, the total number on duty on September 15th being 968, and on the 1st of October, 291. A short period of dry weather the first few days of October necessitated the continuance of some patrols longer than usual, keeping the total number on the pay roll up to 111 on the 15th of the month. Men kept on duty after that date were largely engaged on improvements or repairing equipment.

The need of a permanent skeleton staff composed of the Chief and Deputy Chief Rangers has become more apparent each season. The number of rangers in a Chief Ranger District varied this past season from fourteen to fifty-eight. Both Chief and Deputy Chief Rangers should be on duty earlier in the spring than is now possible in order that they may arrange their organization of, on the average, thirty rangers before the early fire season. They should also be on duty longer in the fall to overhaul equipment and work on permanent improvements.

To successfully fill the position of a Chief Ranger, or of a Deputy Chief Ranger, for so far as possible only men who may eventually become Chief Rangers are appointed to the positions of Deputies, a man should be an experienced woodsman, have organizing and executive ability, be able to handle men, be able to deal with the public, be energetic, and above all, be loyal to the organization of which he is a part. Men having these requirements, and who seek the positions, are not plentiful. If a permanent system of appointment could be adopted the efficiency of the organization would be greatly increased at a small additional increase in the total pay roll, which without doubt would be more than offset by the reduction in the extra fire-fighting costs. There is sufficient work to keep a skeleton staff composed of these men employed throughout the winter months, and in addition, it would afford an opportunity for organizing some system of instruction of these men.

(3) *Expenditure.*

The expenditure for the fiscal year was \$1,062, 956.24, classified as below, with the figures for the preceding years given for comparison. Against this expenditure, protection accounts for the year totalled \$196,888.44.

(4) *Fires*

There was little precipitation in the late summer and fall of 1922, resulting in a small amount of moisture in the ground when cold weather set in. The snowfall during the following winter was heavier than usual, but when the break-up came towards the end of May the exceptionally warm weather and prevalent strong winds carried off the snow so quickly that little of it was absorbed by the deeply frozen ground. The surface of the ground and the covering litter rapidly dried out, and instances occurred of fires starting in areas which three days previous had been covered with snow.

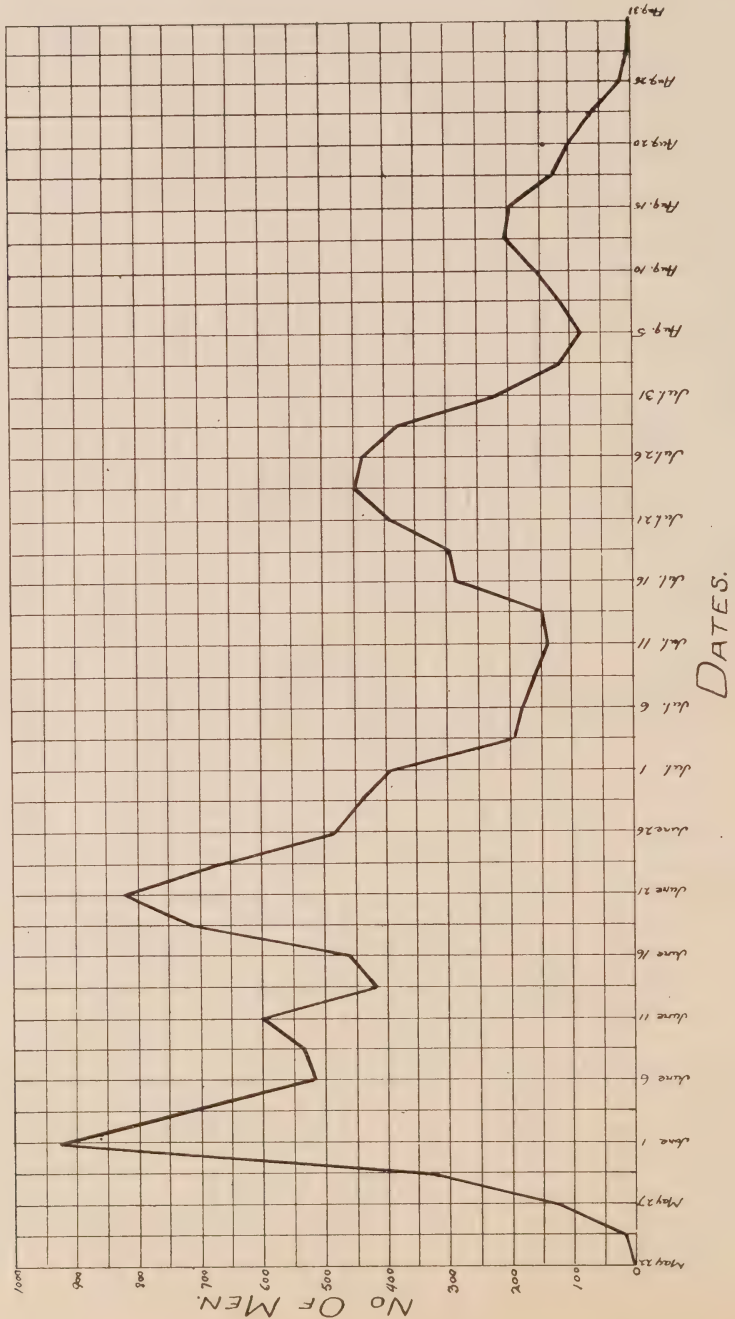
The last week of May and the first week of June was the worst fire period of the season, fires being reported from all parts of the Province. The peak was reached on the 1st of June when there were over 900 extra fire-fighters on duty, in addition to the regular staff of 1,104 on that date. Scattered light showers occurred on the 2nd of June and intermittently from then until the middle of the month when the number of extra men had been reduced to slightly over 400. A second seriously dry period then set in and on the 21st the number of extra fire-fighters had increased to 800. This period was followed by heavy showers and conditions were normal until the middle of July, when

CLASSIFICATION OF EXPENDITURE

ITEM	1923	1922	1921	1920	1919	1918
Pay roll.....	\$535,810 35	\$417,023 88	\$433,463 02	\$398,919 61	\$405,212 30	\$416,500 00
Equipment.....	127,186 92	44,504 49	28,384 40	22,287 83	22,899 02	28,350 00
Expendable equipment.....	5,869 55	3,048 16	19,505 86	16,589 99	13,903 06	10,700 00
Travel (inspection).....	31,436 73	23,088 33	21,034 95	17,495 93	15,826 37	13,440 00
Improvement work.....	54,876 42	40,999 77	3,621 06	1,591 01	4,765 35	4,280 00
Extra fire fighting.....	143,508 13	40,969 67	65,267 79	41,491 24	58,863 92	1,445 00
Express, postage, etc.....	28,083 20	9,561 17	7,926 65	5,401 02	5,646 47	5,365 00
Air operations.....	86,404 71	23,437 84	.....	.....	.....	.....
Repairs, upkeep, etc.....	7,419 24	17,670 45	.....	.....	.....	.....
Miscellany.....	15,328 44	23,598 77	31,331 01	2,331 08	5,955 02	6,054 78
Gasoline and oil.....	7,485 69	.....	.....	.....	.....	.....
Rent.....	5,251 41	.....	.....	.....	.....	.....
Brush-burning.....	229 00	.....	.....	.....	.....	.....
Advertising.....	14,066 45	.....	.....	.....	.....	.....
Total.....	\$1,062,956 24	\$643,902 63	\$610,534 74	\$506,107 71	\$528,071 51	\$486,134 78

the third outbreak occurred, which was less serious than either of the previous two, the number of extra men employed reaching a total of 450. By the 1st of August normal conditions again prevailed. Another outbreak occurred the second week in August, but was not general throughout the Province as were the others. The last critical period was in October and was confined mostly to the southern districts.

NUMBER OF EXTRA FIRE FIGHTERS
ON DUTY DURING HEIGHT OF FIRE SEASON
1923



The fire season as a whole was decidedly abnormal as to weather, not only in Ontario, but throughout all of Eastern Canada. It was quite beyond anything experienced in Ontario over a long period of time and as a result the total forest area burned over much exceeded the average.

CLASSIFICATION OF FOREST FIRES

BY MONTH

MONTH	1923	1922	1921	1920	1919	1918	1917
	No.	No.	No.	No.	No.	No.	No.
April.....	10	35	5				
May.....	462	280	296	1* 422	362	294	449
June.....	374	194	290	309	414	273	320
July.....	283	77	475	142	613	124	158
August.....	154	212	97	300	377	268	117
September.....	22	121	105	2* 114	14	6	66
October.....	38	102	1				
Totals.....	1,343	1,021	1,269	1,287	1,780	965	1,110

1* April and May.

2* September and October.

CLASSIFICATION OF FOREST FIRES

BY ORIGIN

[illegible]

CLASSIFICATION OF FOREST FIRES

BY SIZE

[illegible]

Settlers were responsible for 170 fires, or 12.7 per cent. of the total. Of this number 26 were permit fires which got beyond control. It is worthy of note that the number of fires caused by settlers did not increase in proportion to the increase in the total number of fires, due in no small degree to the application of the Permit Regulations to include that portion of Northern Ontario formerly exempt.

During the season twenty-two convictions were secured for setting out fires contrary to the Regulations. The majority of these occurred after the extension of the Permit Area.

Campers, by which is meant berry-pickers, picnickers, tourists, trappers, Indians and prospectors, were charged with 167 fires, or 12.4 per cent of the total. It was not possible to definitely place the responsibility for any one of these fires. The adoption of the Travel Permit for certain districts, at least during hazardous periods, may be necessary to secure greater caution on the part of people in the woods.

Railways are known to have caused 249 fires, or 18.5 per cent. of the total. In part these can be attributed to "hang-overs" from early spring burning in cleaning up the rights-of-way, the fires burning deep into the dry ground and breaking out again days after all indications of fire had disappeared on the surface. In some cases fires were definitely traced to locomotives which, on immediate inspection, failed to show any defects in the fire protective appliances.

The fires of railway origin were distributed as follows:

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS

RAILWAY	1923	1922	1921
Canadian National Railways (exclusive of northern line).....	6.2	*3.2	*3.7
Canadian Pacific Railway.....	5.3	2.7	3.9
Canadian National Railways (northern transcontinental line only)	2.0	2.4	1.8
Temiskaming and Northern Ontario Railway.....	7.3	7.3	6.3
Algoma Eastern Railway.....	1.1	4.5	5.9
Algoma Central and Hudson Bay Railway.....	3.0	4.2	0.6
	4.9	3.3	3.7

*Former C.N.R. and G.T.R. figures combined.

RAILWAY	Per cent. of Total Number of Railway Fires					
	1923	1922	1921	1920	1919	1918
Canadian National Railways (exclusive of northern line).....	45.9	*36.1	*47.9	*36.4	*28.1	*38.8
Canadian Pacific Railway.....	32.5	25.3	29.8	27.9	26.3	24.9
Canadian National Railways (northern transcontinental line only).....	7.6	13.3	7.9	16.4	25.9	21.8
Temiskaming and Northern Ontario Railway.....	9.6	14.5	10.6	9.9	17.9	10.5
Algoma Eastern Railway.....	.4	2.4	2.8	5.0	0.3	2.9
Algoma Central and Hudson Bay Railway.....	4.0	8.4	1.0	4.4	1.5	1.1
	100.0	100.0	100.0	100.0	100.0	100.0

*Former C.N.R. and G.T.R. figures combined.

Lightning is known to have caused 74 fires, or 5.5 per cent. of the total number. Of this number 16 were in the Sudbury Inspectorate, and 32 in the Algonquin Inspectorate.

Logging operations were responsible for 58 fires, or 4.3 per cent. of the total. Seventy-six fires, or 5.7 per cent. of the total were due to miscellaneous known causes.

A total of 549 fires, or 40.9 per cent. were classed as unknown. In many cases the cause was fairly definitely set, but proof could not be obtained.

A total of 1,343 fires were reported with an area burned of 2,120,148 acres. Of this total, 554 fires, or 41.2 per cent., were confined to areas of 5 acres or less; one-half the fires were kept within 10 acres in size, and 69.4 per cent. of the total within areas of 100 acres or less.

CLASSIFICATION OF BURNED-OVER AREA

FOREST CONDITIONS	1923		1922	1921	1920	1919	1918	1917
	Acres	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land.....	593,569	28.0	13.4	13.2	14.7	26.8	15.8	19.1
Cut-over land (some timber left)	312,184	14.7	20.2	25.2	38.8	27.3	37.0	39.2
Young growth (below six inches)	775,012	36.6	25.2	20.2	26.7	25.3	23.5	19.5
Barren and grass land.....	439,383	20.7	41.2	41.1	19.8	20.6	23.7	22.2
	2,120,148	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The area of timber land burned over was 593,569 acres, or 28.0 per cent. of the total area burned, as is shown in the above table. This percentage is attributable to the increased percentage of large fires completely getting beyond control.

Cut-over land formed 14.7 per cent. of the total area burned, and land upon which young growth existed 36.6 per cent., or a combined area of 1,087,196 acres. While the amount of timber land burned over is serious, the area comprised in the former two classes is equally a serious matter as it is from such classes of land that our future timber crop will be secured, and every fire on such areas not only means a longer lapse of time before lumbering operations may be carried on, but in many cases a deterioration in the species of trees on the areas.

The area of barren and grass land burned over totalled 439,383 acres, or 20.7 per cent. of the total. Much of the barren land, which formed the greater part of this area, at one time was covered by merchantable timber. Repeated fires have, however, reduced the bulk of it to little better than a rock desert upon which merchantable timber will not again be available for very long periods of time.

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1923

RANGER DISTRICT	Number of fires	Timber land, mainly coniferous, i.e., softwood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate:										
1. Kenora.....	62	91,626	21	15,866	3,765	15,584	4,860	30,251	5	161,978
2. Rainy River.....	77	40,454	5,420	57,592	17,354	63,398	26,076	50,485	221	261,000
3. Thunder Bay.....	95	8,185	550	16,765	17,246	28,548	15,190	7,497	1,714	95,695
4. Nipigon.....	10	2,605	.....	.....	.....	3,561	120	.....	.....	6,286
5. C. G. R. Central.....	17	23,010	.....	.....	.....	3,700	815	71,317	.....	98,842
6. Longlac.....	7	10,005	.....	50	.....	33,910	3	16,807	.....	60,775
	268	175,885	5,991	90,273	38,365	148,701	47,064	176,357	1,940	684,576
II. Cochrane Inspectorate:										
1. C. G. R. Eastern.....	18	26,103	4	19,200	.....	27,873	8,002	.....	.....	81,182
2. Hearst.....	13	2,040	3	1,085	150	535	.....	3,926	7	7,746
3. Kapuskasing.....	19	2,400	.....	620	280	1,035	.....	803	.....	5,138
4. Cochrane.....	47	2,183	105	144	32,172	1,276	51	2,852	176	38,959
5. Abitibi.....	10	520	.....	.....	.....	701	2	2,330	.....	3,553
6. Timmins.....	58	4,826	.....	2,688	.....	2,920	110	12,867	207	23,618
7. Matheson.....	43	135	20	582	789	194	28	212	66	2,026
8. New Liskeard.....	8	.....	.....	600	.....	175	400	405	545	2,125
	216	38,207	132	24,919	33,391	34,709	8,593	23,395	1,001	164,347
III. Soo Inspectorate:										
1. Mississagi South.....	4	9,287	.....	1,480	.....	1,620	.....	7,999	.....	20,386
2. Blind River.....	37	741	4	2,369	7,462	3	965	1,720	348	13,612
3. A. C. R.....	36	47,857	1,000	2,523	5,910	3,453	3,845	2,693	603	67,884
4. Franz.....	22	48,703	1,000	5,900	1,500	103,103	36,046	37,271	2	233,525
5. Oba.....	5	87,500	.....	32,200	.....	105,700	5,800	39,800	.....	271,000
6. Hornepayne.....	7	74,100	.....	7	.....	117,505	21,000	24,400	1	237,013
	111	268,188	2,004	44,479	14,872	331,384	67,656	113,883	954	843,420

IV. Sudbury Inspectorate:

1. Sudbury.....	71	2,885	.....	60	.....	11,945	9,954	1,177	673	26,694
2. North Bay.....	54	400	845	427	2,222	369	557	16,368	708	21,896
3. Timagami East.....	19	6,132	.....	2,515	240	.....	115	5,809	2	14,813
4. Timagami North.....	18	27,025	.....	120	10	12,942	.....	599	5,203	45,899
5. Timagami West.....	7	3,176	.....	28	.....	.....	1,540	6,720	.....	11,464
6. Mississagi East.....	11	1,200	.....	30	.....	1,102	508	2,557	2	5,399
7. Mississagi West.....	7	10,440	.....	1,200	.....	1,200	7	4	5	12,856
8. Webwood.....	65	6,016	.....	2,500	2,478	5,255	6,912	10,190	145	33,496
9. Foleyet East.....	36	11,423	.....	14,553	.....	1,923	.....	21	.....	27,920
10. Foleyet West.....	12	23,880	.....	12,850	.....	32,840	.....	10,670	4	80,244
	300	92,577	845	34,283	4,950	67,576	19,593	54,115	6,742	280,681

V. Georgian Bay Inspectorate:

1. Georgian Bay West.....	117	737	321	2,900	5,019	2,305	17,634	7,011	122	36,049
2. Georgian Bay East.....	60	.....	1,975	.....	7,941	143	6,231	3,084	968	20,342
	177	737	2,296	2,900	12,960	2,448	23,865	10,095	1,090	56,391

VI. Algonquin Inspectorate:

1. Algonquin North.....	57	.....	4,600	1,032	5,038	5,494	576	18,549	67	35,356
2. Algonquin South.....	90	301	200	1,680	303	2,420	261	11,084	117	16,366
	147	301	4,800	2,712	5,341	7,914	837	29,633	184	51,722

VII. Trent Inspectorate:

1. Trent.....	124	276	1,330	200	2,539	683	13,989	16,871	3,123	39,011
Totals.....	1,343	576,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
Per cent.....	.....	27.2	0.8	9.4	5.3	27.9	8.7	20.0	0.7	100.0

1922 Totals.....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
1921 Totals.....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 Totals.....	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 Totals.....	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 Totals.....	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals.....	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

(5) *Permits*

A total of 5,907 permits were issued during the season, covering an area of 54,784 acres, as compared with an average of 6,739 permits covering 26,260 acres for the seasons 1917 to 1922 inclusive. Of this number, 5,677 permits were issued in 207 townships, 159 in unsurveyed territory, and 25 for railway rights-of-way, these latter covering an area of 22,488 acres. With the increase in the size of the Permit Area a corresponding increase is naturally to be expected in the number of permits issued and the acreage burned over. In June however, when a great amount of burning is usually done, the hazard was so great that permits were refused in most localities. The number issued in July and August was also small. It was necessary for the first time to keep the Permit Regulations in operation during October owing to the unusual weather.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1923	1922	1921	1920	1919	1918	1917
Cochrane.....	1,480	2,497	1,503	1,982	2,275	3,493	.....
Matheson.....	1,122	2,126	1,599	1,887	1,691	2,346	.....
New Liskeard.....	361	.....	916	1,169	1,557	2,179	.....
Hearst.....	1,000	1,774	1,082	756	702	514	.....
Timmins.....	406	754	407	193	199	651	.....
Kapuskasing.....	531	.....	.....	.....	.....	.....	.....
Kenora.....	362	.....	.....	.....	.....	.....	.....
Rainy River.....	216	.....	.....	.....	.....	.....	.....
Rainy other districts.....	429	1,452	459	167	211	407	.....
Totals.....	5,907	8,603	5,966	6,154	6,635	9,590	3,486

MONTH	Number of Permits						
	1923	1922	1921	1920	1919	1918	1917
May.....	2,131	1,992	1,154	1,003	1,536	2,248	.....
June.....	711	3,034	3,085	2,011	2,786	2,899	.....
July.....	1,314	1,502	364	891	496	2,050	.....
August.....	1,077	1,580	1,329	1,620	1,475	2,156	.....
September.....	566	495	34	629	342	237	.....
October.....	108	.....	.....	.....	.....	.....	.....
Totals.....	5,907	8,603	5,966	6,154	6,635	9,590	3,486

DISTRICT	Acreage Burned Over Under Permit						
	1923	1922	1921	1920	1919	1918	1917
Cochrane.....	4,348	8,108	4,652	4,984	5,437	10,267	.....
Matheson.....	5,027	7,613	5,442	5,427	4,760	7,371	.....
New Liskeard.....	1,160	.....	7,726	9,768	13,521	17,863	.....
Hearst.....	2,335	3,837	2,124	1,478	1,379	1,134	.....
Timmins.....	918	2,591	988	424	925	1,971	.....
Kapuskasing.....	2,126	.....	.....	.....	.....	.....	.....
Kenora.....	35,006	.....	.....	.....	.....	.....	.....
Rainy River.....	1,374	.....	.....	.....	.....	.....	.....
All other districts.....	2,490	7,306	2,746	686	768	1,072	.....
Totals.....	54,784	29,455	23,678	22,767	26,790	39,683	15,186

(6) *Equipment*

The expenditure required annually for the replacement of equipment is necessarily large in an organization with a field staff of over twelve hundred men, but the purchase of additional and improved fire-fighting equipment must not be overlooked. Forest protection to-day depends largely upon organization and equipment, especially on the mechanical side. The combating of fires with effective means has also a desirable influence in raising the general spirit of the personnel to reduce fire losses.

Of the total expenditure of \$127,186.92 on equipment this past season, almost one-half the amount was invested in portable forest fire-fighting units and hose. Fifty-four of these units, or pumps as they are commonly called, were purchased, with 2,000 feet of hose for each, and paid for themselves many times over this one season. They not only took the place of manual labour, which was not always available, but enabled the control of fires in places where otherwise it would have been impossible.

That no towns nor settlements were burned and no lives lost was due in some instances only to the morale of the field staff and their work with the pumps. During early June five northern towns were seriously endangered, but in each case it was possible with the use of two or three pumps to check the fire before buildings were destroyed. In one instance the situation became so critical that the women and children were placed on a special train ready to leave the town, but the rangers, with their faces muffled with wet cloths so hot was the blaze, were able with three pumps to check the fire and not one building was burned within the town limits.

Even after the close of the forest fire season the greater part of one small town, in which is located a Chief Ranger headquarters and storehouse, was saved from destruction by a fire which started within the town itself. The pumps had been stored away for the winter, but the one man at the headquarters was able to have them in operation in a very short time and the fire was stopped with comparatively small loss.

These instances demonstrate the usefulness of the forest fire pump in protection work. The average life of a unit is not definitely known, but it is at least five years. The initial outlay therefore, distributed over this period makes the annual charge reasonably small. There are now 88 pumps in stock but many more are needed.

In districts where the roads will permit, light delivery trucks are used to good advantage. They provide a means of rapid transport for men and sup-

plies in case of fire, aid a Chief Ranger in the supervision of the district, and in the more thickly settled areas where many burning permits are issued enable the covering of a large territory by one man. Nine such trucks were purchased this past season, six of these being replacements. It is desirable that more be purchased next season, from the standpoint of economy as well as efficiency.

In some of the northern districts railway motor cars take the place of the motor trucks, permission being obtained from the railway companies for the operation of the cars over their lines. While not as effective as the automobiles, because of their limited routes of travel, they are almost indispensable especially where the train service is infrequent. Light cars which can be handled by one man are used for inspection work, while for general use a heavier car capable of pulling a loaded trailer is used. All of these cars can carry two men with a pump and 500 feet of hose. A total of nine were purchased during the season, two of these being replacements.

In outlying districts where there are neither roads nor railways and on large lakes, motor boats are used, the most common type being the lumberman's pointer equipped with a medium duty motor. In some waters these boats are necessary for the transport of men and supplies, while in others they are a means of economy in that the two boatmen can cover a patrol which would take from four to six canoe-men. They are also the safer method of travel on the larger lakes. Four pointers were purchased this past season, one cabin cruiser, and one open cruiser.

The replacement of condemned tents and canoes requires the purchase annually of a number of both, in addition to those required for new patrols. Spares must also be kept on hand for the use of extra fire-fighters. A total of 345 tents were bought during the season, and 120 canoes, the number of tents being exceptional, occasioned by the number required for the large gangs of extra fire-fighters.

A total of 3,055 pairs of blankets were bought, this large number being due in part to the supply required for the extra men on duty during the bad fire periods, and in part to the replacement of a large quantity sent to the fire sufferers in the vicinity of Haileybury in the fall of 1922. Most of the blankets purchased during the past season were made up with distinctive markings.

The major equipment in stock at the close of the fire season for use by the 1,200 rangers, consisted of 88 portable fire pumps, 156,500 feet of hose for use with these pumps, 13 automobiles, 27 railway motor cars, 151 railway velocipedes, 29 motor boats, 3 motor canoes, 690 ordinary canoes, 31 riding saddles, 4,300 pairs of blankets, 957 tents, 2,185 axes, 546 grub and ordinary hoes, and 2,541 shovels.

(7) *Locomotive Inspection*

As in previous years two men were employed throughout the season on the inspection of fire protective appliances on locomotives operating on railways under the jurisdiction of the Dominion Board of Railway Commissioners, these men acting under appointments as officers of the Board.

A total of 41 round-houses and gravel pits were visited periodically, and 1,760 locomotive inspections made, covering 866 locomotives. There were in addition, 21 inspections of locomotives operated by lumber companies, bringing the total number of inspections up to 1,781. The table below shows a steady increase in the number of inspections made each season, and a steady decrease since 1918 in the percentage of locomotives found defective; this percentage in 1923 was only 2.5.

LOCOMOTIVE INSPECTION, 1923

RAILWAY	Number Inspected					Total No. Locomotives	Total Number Inspections							Inspections Showing Defects	Percentage Defective					
	Times																			
1	2	3	4	5 and over	1923	1922	1921	1920	1919	1918	1917	1923	1922	1921	1920	1919	1918	1917		
C.P.R.....	201	125	62	37	15	860	815	723	660	499	448	328	20	2.3	5.8	8.3	18.8	29.9	36.4	19.5
C.N.R.....	185	88	70	35	27	856	681*	740*	577*	472*	416*	214*	23	2.7	3.5*	5.7*	6.4*	13.3*	25.0*	34.1*
A.C. & H.B.R....	4	8	3	...	...	29	45	35	25	23	36	37	...	...	2.2	22.8	12.0	13.0	38.8	45.9
A.E.R.....	1	2	2	1	...	15	22	28	26	18	20	36	1	6.6	...	21.4	46.1	16.7	70.0	55.5
Totals.....	391	223	137	73	42	1,760	1,563	1,526	1,288	1,012	920	615	44	2.5	4.6	8.3	12.8	21.8	32.1	28.3

Average cost per inspection: 1923, \$1.88; 1922, \$1.61; 1921, \$1.70; 1920, \$1.86; 1919, \$2.07; 1918, \$2.59.

*Former C.N.R. and G.T.R. figures combined.

(8) *Improvements*

The past season was anything but favourable for improvement work, the fire situation keeping all men busy until well into late summer. In spite of this however, considerable was accomplished, most of the work being done by the regular ranging staff.

A certain amount of work is necessary each spring on all portages and trails totalling several hundred miles, to clear them of windfalls and debris accumulated during the winter months. In addition to the accomplishment of this, over 100 miles of new trails were cut during the season.

A total of 55 ranger cabins were erected, most of these having log walls and a pole roof covered with paroid roofing. Nine storehouses were built and three others enlarged, two canoe sheds, seven garages and two boat houses.

The largest building was the combined boat and storehouse at Parry Sound, this being a galvanized iron L-shaped building with a plank frame. The boat-house is 36 feet square with three boat slips, and is equipped with a two-ton combined chain hoist and trolley. The storehouse is 22 feet wide and 50 feet long, with skylights throughout. The whole building is set on piling driven to an average depth of 10 feet. The construction of the building was under the direct supervision of the District Forester.

The number of lookout towers was increased by the addition of six 80-foot steel towers and 23 wooden towers, the latter all being put up by the rangers themselves.

Several telephone lines were built with a total of 299.5 miles. Principal among these were the following:

French Lake to Sturgeon Narrows and north end of Agnes Lake, Rainy River District, ground circuit.....	50	miles
Larder Lake to Mt. Chiminiss, Matheson District, ground circuit.....	11	"
Kenney to Red Cedar Lake, North Bay District, ground circuit.....	28	"
Parry Sound to Go-Home Bay, Georgian Bay West District, ground circuit.....	30	"
Killaloe to south-east corner Niven Township, Algonquin South District, ground circuit.....	46 $\frac{1}{4}$	"
Pembroke to Brent, Algonquin North District, metallic circuit.....	78	"
Gilmour to lookout tower in Cashel Township, Trent District, ground circuit.....	13	"

A light field telephone cable similar to that used for military purposes has been found very satisfactory for temporary telephone lines. Eighty-two miles of this type of line were in use during the season.

The total permanent improvements now consist of 253 cabins, 32 storehouses, 18 garages, 7 boat-houses, 2 canoe sheds, 17 steel lookout towers, 100 wooden lookout towers, and 636 miles of telephone line.

SUMMARY OF PERMANENT IMPROVEMENTS

Inspectorate	Cabins	Store-houses	Garages	Boat-houses	Other Buildings	Steel Towers	Wooden Towers	Telephone Lines, miles
Western.....	56	6	3	2			20	175
Cochrane.....	39	6	5	2			17	11
Soo.....	27	3	2		2		10	
Sudbury.....	91	8	5	2		2	27	144
Georgian Bay....	7	5		*1		7	1	50
Algonquin.....	25	3	2	1		3	19	213
Trent.....	8	1	1			5	6	43
Totals.....	253	32	18	7	2	17	100	636

*Combined boat and storehouse.

(9) *Air Patrol*

Aircraft for forest fire detection were used in Ontario for the second time last season. A main flying base was established on Ramsay Lake near Sudbury, and a sub-base on Trout Lake near North Bay.

Patrols were made over the northern part of the Georgian Bay and Algonquin Inspectorates, the greater part of the Sudbury Inspectorate, and the eastern part of the Soo Inspectorate, during the peak of the fire season in May and June, covering an area of approximately 40,000 square miles. Systematic patrols were confined to a part of the Sudbury Inspectorate over an area of 8,100 square miles.

The total flying time for the season was 430 hours, the bulk of this being done by the H.S. 2 L type of machine, with occasional flights by a Vicker's "Viking" machine. The flying season extended from the 22nd of May to October 15th, with from two to five machines available.

New fires located by the patrols were reported either by dropping messages to the ground staff, or by telegraph or telephone upon the landing of the machine. Owing to the inability of the H.S. 2 L machines to either land on or take off from small lakes, they were used only twice during the season for transporting men and equipment to specific fires.

The operations during the two seasons in which aircraft have been used have clearly demonstrated the following facts:

1. That for sighting and locating forest fires aircraft have no equal.
2. That for country similar to that in the western part of the Province, where the expenditure necessary for an efficient ground detection system makes that system prohibitive, patrol by aircraft is the best solution.
3. That in country similar to the above, the use of aircraft of the type available at the present time will not allow a reduction in the ground staff in that territory sufficient to affect the total pay roll. These machines can be depended upon for detection only, or for transportation for very limited distances. The rangers must therefore be located in the area patrolled to combat the fires reported to them. They may be taken from long canoe patrols and engaged on improvement work at definite points known to the airmen, but they cannot be taken from the territory.
4. That air patrol has a great moral effect both upon the people in the patrol area and upon the rangers themselves.

5. That a special type of machine should be designed for this class of work. The machines available at the present time are not entirely suitable in that the operating costs are high and the "performance" low.

(10) *Brush Burning.*

During the winter of 1922-3 an experiment was conducted in the Algonquin Inspectorate to determine the possibilities and probable cost of brush disposal in connection with logging operations. Two gangs of six men, each in charge of a Deputy Chief Ranger, were engaged on this work, one in a pine operation and the other in a pulp operation. In both cases a maximum of slash was produced as everything was taken out from which a log could be obtained. The system of piling and green-burning was followed throughout.

Little difficulty was experienced in getting the brush to burn, even when wet, although the burning operations should follow the cutting operations as closely as possible to prevent the covering of the slash by snow.

The cost of an operation of this kind varies with the depth of the snow, condition of the weather, density of the slash, and the attitude and experience of the men engaged on the work. Under conditions similar to those existing on the above area slash from a pine operation should be disposed of at a cost of from seventy-five cents to one dollar per thousand feet, and from a pulp operation at a cost of from forty to fifty cents per cord.

II. FOREST INVESTIGATION.

During the past season two large forest survey projects were undertaken. The details of report on these surveys it is hoped will be published at a later date. The following is a summary of the work accomplished.

MISSISSAGI FOREST SURVEY

1. *Area.*—The territory covered in the following report comprises the Mississagi Forest Reserve, in all some 5,100 square miles, but of this area 700 square miles is held under timber license and was not surveyed. The Mississagi Reserve may be generally located as lying within the triangle formed by the main line of the C.P.R., the Soo Branch of the C.P.R., and the Algoma Central.

2. *Object.*—To obtain an estimate of all standing timber of merchantable size and to prepare a type map showing forest types and drainage systems. An effort was also made to collect data for the construction of composition stand tables, paying most attention to the reproduction in the young growth stands, also measurements were made on white pine for the construction of a volume table based on taper.

3. *Organization.*—Field work was organized as a combination of ground estimation and aerial forest type mapping.

(a) *Ground Work.*—Five separate parties were employed, made up of twenty-seven forestry men and twelve others as cooks and packers. Work commenced May 22nd to 24th with each party having a specified piece of country for their season's work. For most of the men September 20th closed the season. But an extra party was organized to remain another month.

The strip method was used by the ground parties to obtain type boundaries and representative tallies for the estimate, width of line

varied from eleven to thirty-three feet, thirty-three feet being used in pine stands. Lines were run at one-half mile intervals unless it was quite apparent that a particular stretch of country had no timber of commercial value, when only a sample plot of the type would be taken.

Three timber types were recognized:

Coniferous—less than 20 per cent. hardwood.

Mixed—20 per cent. to 80 per cent. hardwood.

Hardwoods—less than 20 per cent. conifers.

Each of the above was further classified to show second and young growth stands.

- (b) *Aerial Type Mapping*.—Two foresters were engaged on this work with a main base at Biscotasing and two sub-bases at Como and Kirkpatrick lakes. Roughly, one-half of the area was mapped in one hundred and fifty flying hours. Aerial type work was as far as possible confined to country where the timber was of non-commercial value or which was unusually difficult of access to the ground party.

4. *Results: Drainage*.—The whole reserve falls into four main drainage basins, a small area in the north being in the James Bay drainage. Down the west side the Montreal, Batchewana and Goulais rivers all flow to Lake Superior. The third and largest area is drained by the Mississagi and tributaries, while the fourth comprises a small area in the southeast draining into the Spanish.

Topography.—The area is well-drained, there being less than two per cent. classed as muskeg. Across the north and east half there is little relief, the country being made up of a succession of low rolling hills. From the Wenebagon river westward, however, more rocky outcrops are noted and the whole could be termed hilly. The rivers in this western section all have steep sides and many falls and rapids.

Forest Conditions, General.—In distribution of species, the reserve marks the northern limit of hard maple and yellow birch and also of commercial white and red pine. For while pine occurs north of the reserve, the quantity, 125 million board feet on 4,000 square miles covered by the Missinabie survey, or fifty feet per acre, is insignificant. An approximate figure for the Mississagi Reserve would be 500 feet board measure per acre. This pine appears to be typical, for when the volume table prepared from measurements made on the reserve was compared with existing tables very little difference was noted. In general, the whole area may be termed a transition between the southern type of forest and the more northerly spruce-balsam forest.

Types, General.—The mixed type is largely composed of jack pine, spruce, balsam, and in two-thirds of the area, white and red pine in varying quantities. The hardwoods in the mixture are chiefly white birch, poplar, and in the south-west a scattering of hard maple and yellow birch.

The coniferous type is represented by stands of pure spruce, jack pine and spruce mixture, and white and red pine mixture. White and red pine also occur in pure stands. The coniferous types are generally confined to more poorly drained areas, low gravelly plains and rocky uplands.

The hardwood type is confined to the south-westerly part of the reserve. These hardwoods, maple and yellow birch, occur generally on uplands having a north or west exposure. The maple and yellow birch are living at the northern limit of their distribution and are generally stunted, crooked and limby, with a great prevalence to heart rot.

5. *Cost*.—Flying, \$17,700; ground work, \$23,000.

NIPIGON AERIAL FOREST SURVEY

Area.—The territory covered in the following report includes the eastern half of the Nipigon Forest Reserve in the District of Thunder Bay, together with adjacent territory, mainly draining into Lake Nipigon, though beyond the reserve boundaries, in all some 4,800 square miles. In detail, the boundaries are as follows: Windigo Bay (Lake Nipigon), north along Rapid creek to the north line, Canadian National Railway; east to the Pikitigushi river to White-clay lake; east down the Ogoki river to Otter river; south up the Otter river; down the Makoki river; up the Kapikotongwa river to the reserve boundary; east to the northeast corner of Nipigon Forest Reserve; south by the eastern boundary of the reserve to the height of land (Great Lakes-James Bay watershed); along the height of land to Fecteau lake; west to the reserve boundary; along the reserve boundary to Hydro falls on the Nipigon river; north along the Nipigon river and the east shore of Lake Nipigon to Windigo bay.

Procedure.—Orient bay, on the Canadian National Railway, at the south end of Pijitawabik bay on Lake Nipigon, was used as a main base of operation. Subsequently, a sub-base was established on a small island in Ombabika bay near the mouth of Ombabika river, in order to facilitate working over the northern area, and to minimize ineffective flying time.

The work commenced on June the 9th and was completed on July 13th. It was carried out by two foresters, who sketched the areas flown over from the front cockpit of flying boats. One forester had had previous experience at this particular kind of work, while the other received training during the course of the operation.

The sketching was done on mounted maps, scale one mile to the inch, which showed, when finished, all lakes, large streams and rivers, as well as the forest types. These mounted maps were cut to a size of approximately 12x18 inches, covering an area of six six-mile townships each. This was found to be the most desirable size of map for sketching work in this type of country.

As soon as a field sheet was finished to the forester's satisfaction, it was transferred to a field base map, scale two miles the inch. In this way the base map was kept up to date, and any errors in tying in field sheets discovered before leaving the operation, and corrections made.

In cases where types were not readily recognized from the air, landings were made in suitable lakes in order to permit an examination of the types on the ground.

Topography.—Topographically, that part of the above territory draining into Lake Nipigon is similar to the north shore drainage basin of Lake Superior. The surface is rough, and broken by deep ravines, with numerous lakes of irregular outline and occurrence, scattered very generally throughout the whole region. Streams are usually short and rapid. Soils are typically shallow and coarse.

Where the territory under consideration extends beyond the Nipigon drainage into Hudson Bay waters, a more or less gradual modification towards the flat, poorly-drained country, typical of the greater part of this whole basin, is distinctly noticeable, particularly in the north and northeasterly direction.

Forest Distribution.—Consideration of the territory from this standpoint divides it immediately, on a basis of fire history, into two sharply contrasted areas of very unequal size, which may be conveniently referred to as the Northern and Southern Areas, respectively, having as a rough common boundary the north line of the Canadian National Railway.

(a) Northern Area—

The northern area, some fifteen hundred square miles, or 30 per cent. of the whole, is unusually dry, or lacking in lakes and rivers, and has been subjected to severe and repeated burning, so that, with the exception of 100 square miles of moderately good spruce pulpwood in the northwest corner, tributary to James Bay drainage (see type map), fully 85 per cent. may now be classified as barren, burned and muskeg, with a liberal 15 per cent. allowance for the scrubby remains of former timber stands fringing watercourses, and in damp hollows.

Under the above conditions it was not considered advisable to expend the time or run the risks necessary to prepare a detailed type map of this territory.

(b) Southern Area—

South of the northern line of the Canadian National Railway, very much less country has been burned over, at least within the last eighty years.

(1) General Forest Conditions—

Due to the rugged character of the country, and lack of soil, the area as a source of timber is rather disappointing. Rocky uplands, sometimes fairly level, with very thin soils, bounded by quite abrupt boulder-strewn slopes, and covered with either open park-like stands, or undersized slow-growing stands, are of common occurrence and might be taken as typical of a great deal of the southern area.

Better stands are confined to lake basins, valleys, and scattered sand plains, with a few notable exceptions, where best quality mixed stands occur on high plateaus.

(2) Occurrence of Types—

The predominating type is a mixture of spruce or jack pine with poplar and birch, though occasionally both spruce and jack pine enter into the mixture.

Pure conifer follows mixed, in order of frequency of occurrence. It is found as both a lowland, pure spruce swamp and as an upland type, although in this latter situation there is frequently a slight mixture of birch and poplar.

Pure birch and poplar stands occur in such small patches that the type was not differentiated, but was thrown in as a mixed type.

(3) Species occurring in commercial quantities—

Black spruce, white spruce, jack pine, balsam, poplar and birch.

(4) Species occurring in non-commercial quantities—

White pine, red pine, black ash, cedar, tamarack.

(5) One hundred and four hours' flying—

Four special landings for sample plot work, and investigation of timber conditions.

(6) Cost—

Approximately, one-half cent per acre; total cost, approximately, \$15,000.

III.—REFORESTATION

PROVINCIAL FOREST STATIONS:

Norfolk County (St. Williams).

Durham County (Orono).

Simcoe County (Midhurst).

Kemptville Transplant Nursery.

FOREST PLANTATIONS:

Sand Banks.

Hendrie.

TREE PLANTING:

Private Planting.

Demonstration Plots.

Inspection.

SEED COLLECTING.

NORFOLK COUNTY—(ST. WILLIAMS)

Seed beds were sown during both the spring and fall season. Fall seeding is being favoured and is now possible since a surplus supply of seed is available. A more equal division of labour is, however, the chief incentive toward fall seeding as this relieves at least one imperative operation during the spring rush.

SPRING SOWING OF CONIFEROUS SEED

Species	Collected	Origin	No. of Beds Sown	Amount Seed Per Bed		Totals, lbs.
				lbs.	ozs.	
Scotch Pine.....	1922	Norfolk County....	110	.....	12	82½
Jack Pine.....	1922	Norfolk County....	70	.....	10	43¾
White Spruce.....	1922	Quebec.....	60	.....	14	52½
European Larch.....	1922	Danish.....	15	1	4	18¾
Totals.....	.....	.....	255	.....	.....	197½

FALL SOWING OF CONIFEROUS SEED

Species	Collected	Origin	No. of Beds Sown	Amount Seed Per Bed		Totals, lbs.
				lbs.	ozs.	
White Pine.....	1922	Simcoe County....	200	1	4	250
Red Pine.....	1923	Simcoe County....	358	.....	13	290⅞
White Cedar.....	1922	Simcoe County....	33	1	4	41¼
White Spruce.....	1922	Simcoe County....	13	1	.....	13
Totals.....	.....	.....	604	.....	.....	595⅞

Hardwoods of the various species are propagated in addition to the common conifers.

SOWING OF HARDWOOD SEED

SPECIES	Collected	Origin	When Sown	How Sown	Total (Bus.)
Soft Maple.....	1923	Pr. Edward County	Spring	Seed Beds	2
“ “.....	1923	“ “ “	“	Flats	4
White Elm.....	1923	“ “ “	“	Seed beds	6
White Ash.....	1922	“ “ “	“	“ “	8
“ “.....	1923	“ “ “	Fall	Flats	20
Hard Maple.....	1923	Lanark County	“	“	2½
Manitoba Maple.....	1923	Norfolk County	“	“	1½
Red Maple.....	1923	Pr. Edward County	Spring	Seed beds	8
White Birch.....	1922	Simcoe County	“	“ “	1½
Honey Locust.....	1922	“ “	“	“ “	1½
Black Locust.....	1922	Norfolk County	“	“ “	¾
Black Walnut.....	1923	“ “	Fall	Drills	135
Totals.....					189¼

NURSERY LINES

During the spring, 2,927,700 transplants were lined out on an area of approximately fourteen acres. The season's planting indicates rapidly increasing production.

SPRING TRANSPLANTING OF CONIFERS

SPECIES	Age. Yrs.	Origin	No. of Seedlings
Scotch Pine.....	2	Norfolk County	242,000
Scotch Pine.....	1	Norfolk County	446,000
Red Pine.....	1	Simcoe County	1,140,000
Jack Pine.....	2	Norfolk County	91,000
Jack Pine.....	1	Norfolk County	800,000
European Larch.....	1	Danish	180,000
White Spruce.....	1	Simcoe County	25,000
Red Cedar.....	2	Norfolk County	700
Totals.....			2,927,700

In recent years fall transplanting of one and two year old seedlings has given satisfactory results. Heaving and winter browning is guarded against by protective permanent hedges, intervening rows of sorghum and mulching with rye straw or strawy manure.

FALL TRANSPLANTING OF CONIFERS

SPECIES	Age. Yrs.	Origin	No. of Seedlings
White Pine.....	1	Simcoe County	242,800
White Pine.....	2	Simcoe County	735,000
Red Pine.....	1	Simcoe County	633,600
Red Pine.....	2	Simcoe County	225,000
White Spruce.....	2	Simcoe County	280,000
Norway Spruce.....	2	Danish	275,000
White Cedar.....	2	Simcoe County	192,000
Red Cedar.....	2	Norfolk County	480
Total.....			2,583,880

It has been found advisable to line out hardwoods at the end of their first growing season, and cultivate them another year in the nursery before disposal for permanent planting.

During the recent fall the following hardwoods have been transplanted:—

SPECIES	Age. Yrs.	Origin	No. of Seedlings
White Elm.....	1	Prince Edward County	65,000
Soft Maple.....	1	Prince Edward County	7,00
Red Maple.....	1	Prince Edward County	27,000
Hard Maple.....	1	Lanark County	74,000
Manitoba Maple.....	1	Norfolk County	2,000
White Ash.....	1	Simcoe County	80,000
Beech.....	1	Prince Edward County	11,000
White Birch.....	1	Prince Edward County	10,000
Honey Locust.....	1	Prince Edward County	8,700
Catalpa.....	1	Norfolk County	1,600
White Walnut.....	1	Norfolk County	11,000
Black Walnut.....	1	Norfolk County	10,000
Total.....			307,300

Distribution of transplants to other Provincial Forest Stations, and Plantations was made as follows:

SPRING DISTRIBUTION OF TRANSPLANTS TO GOVERNMENT STATIONS

SPECIES	Provincial Forest Stations		Provincial Forest Plantations		Totals
	Orono	Midhurst	Simcoe Co.	Sand Banks	
Scotch Pine.....	138,000	121,000	64,000	87,500	410,500
Red Pine.....	380,000	338,000	210,000	74,000	1,002,000
Jack Pine.....	163,000	258,000	531,000	241,500	1,193,500
European Larch.....	69,000	170,000	82,000	92,000	413,000
Totals.....	750,000	887,000	887,000	495,000	3,019,000

FALL DISTRIBUTION OF TRANSPLANTS TO GOVERNMENT STATIONS

SPECIES	Provincial Forest Stations		Provincial Forest Plantations		Totals
	Orono	Midhurst	Simcoe Co.	Sand Banks	
White Pine.....	480,000	535,000	154,000	25,000	1,194,000
Scotch Pine.....				74,000	74,000
Red Pine.....	130,000	137,000	108,000		375,000
Jack Pine.....				256,500	256,500
White Spruce.....	175,000	125,000	100,000	42,500	442,500
Norway Spruce.....	98,000	80,000	100,000	24,000	302,000
White Cedar.....	42,000	45,000	27,000	81,000	195,000
Totals.....	925,000	922,000	489,000	503,000	2,839,000

On account of increased seedling production it has been found necessary to become more intensive in our nursery practice. This means an almost continual cropping of the productive area, which in turn demands heavy fertilizing. Both animal and commercial fertilizers have been applied as tabulated below:

FERTILIZERS

LOCATION	Animal Fertilizers		Mineral Fertilizers		
	Manure (tons)	Dried Blood (lbs.)	Lime (tons)	Acid Phosphate (lbs.)	Sulphate of Ammonia (lbs.)
Lot 1.....	4	...	..	...	...
Lot 2.....	36	350	4	800	150
Lot 3.....	12	...	2	150	...
Lot 4.....	60	300	4	800	150
Lot 5.....	11	125	..	...	...
Lot 8.....	11	...	..	...	...
Lot 9.....	3	...	..	...	...
Lot 11.....	16	...	..	...	...
Lot 12.....	15	300	..	800	200
Lot 13.....	15	...	..	...	...
Lot 14.....	17	...	..	...	...
Lot 15.....	15	...	..	...	...
Lot 16.....	15	...	..	...	...
Lot 17.....	18	...	..	...	...
Lot 18.....	7	...	..	...	...
Lot 19.....	13	...	..	...	...
Lot 20.....	5	...	..	...	...
Lot 21.....	6	...	..	...	...
Lot 22.....	19	225	..	600	150
Lot 23.....	10	...	..	...	...
Lot 24.....	12	...	..	...	...
Lot 25.....	18	225	..	600	150
Lot 26.....	45	160	..	800	150
Lot 27.....	4	...	..	...	...
Lot 28.....	10	...	..	...	...
Lot 29.....	50	...	4	800	...
Lot 30.....	8	...	..	...	...
Lot 31.....	20	...	..	...	...
Lot 32.....	20	...	2	400	...
Lot 34.....	18	...	..	...	...
Lot 35.....	22	...	2	400	...
Lot 36.....	15	...	2	400	...
	550 (tons)	1,685 (lbs.)	20 (tons)	6,550 (lbs.)	950 (lbs.)

Additions to Property.—Two very necessary buildings were constructed this year. A two storey frame shed 20' x 60' was built to meet the demands of inside storage space for seed bed rails, stakes, frames, stringing tables, lath mats, crates, crating material and various sorts of dressed lumber requisite to every forest station.

Norfolk County leads in tree planting. Many plantations originated several years ago and are now bearing an annually increasing quantity of cones. The requirement of a seed extracting plant long felt, has this year been overcome, by the building of a three storey concrete structure 20' x 30' in dimension. This plant is capable of meeting maximum demands for many years to come, and is a most important addition to the station.

Roads.—All woods roads have been brushed and widened.

One and three quarter miles of new fire line 24 feet in width was cleared and grubbed, while a narrower 16 foot belt one mile in length was cut, delineating three one-hundred acre lots.

With the exception of a short fire line of 650 yards yet to be cleared, the entire thirteen lots comprising the station, are now protected by these fire roads. All old lines have been maintained by discing and plowing.

Silviculture.—During the past winter and early spring, eighty acres of mixed hardwood type on Lot 23, Concession 6, was subjected to improvement cutting. An additional area comprising approximately one hundred acres of brush land on Lots 19, 20, 21, 5th Concession, has been cleaned up in anticipation of planting permanent stock during the ensuing year.

Protection.—Three men were employed during the summer months on the work of eradicating members of the family "ribes," for the prevention of the white pine blister rust. No report of an outbreak of this disease was recorded. The immunity belt was considerably enlarged.

The work of the white pine weevil was apparent and, curiously, more prevalent during the latter part of June and in July. It cannot be said, however, that more damage than usual was caused by this pest. Infected leaders and all trees showing disease were destroyed.

No fire damage occurred on the property in spite of the fact that the spring season was an exceptionally dry one. Several neighbouring fires were reported and assistance sent from this point.

The stock list of material at this station is as follows:

HARDWOODS

Ash, White.....	122,000
Butternut.....	59,600
Basswood.....	1,200
Beech.....	11,000
Birch, White.....	10,200
Chestnut.....	4,000
Catalpa.....	2,600
Elm, American.....	102,600
Hickory.....	250
Hackberry.....	450
Locust, Black.....	4,000
Locust, Honey.....	18,400
Maple, Manitoba.....	2,950
Maple, Soft.....	61,000
Maple, Red.....	27,000
Maple, Hard.....	159,000
Oak, Red.....	4,000
Poplar, Rooted.....	2,000
Poplar, Cuttings.....	250,000
Tulip.....	10,300
Walnut, Black.....	76,000
Willow, Rooted.....	300
Willow, Cuttings.....	50,000

CONIFERS

Balsam.....	151,00	
Cedar, White.....	2,752,000	
Cedar, Red.....	480	
Larch, European.....	195,600	
Larch, Japanese.....	28,000	
Pine, White.....	3,027,800	
Pine, Scotch.....	2,625,000	
Pine, Jack.....	3,556,000	
Pine, Red.....	1,557,000	
Pine, Austrian.....	8,000	
Spruce, White.....	1,221,500	
Spruce, Norway.....	310,000	
		15,432,380
Grand total.....		16,411,230

DURHAM COUNTY—(ORONO)

As this has been the first full season's operations our work has been more of a preparative and organizing nature than any extensive nursery work. This consisted in the establishing of windbreaks around the outside of the whole area, the lining out and establishing of permanent nursery roads, repairing of fences, etc., besides general soil culture operations.

Nursery operations were as follows:

Seeding.—Spring sowing commenced April 30th and continued until May 19th, a total of 92 beds being set out.

SPRING SOWING OF CONIFEROUS BEDS

SPECIES	Collected	Origin	No. of Beds sown	Amount Seed per bed		Totals	
				lbs.	ozs.	lbs.	ozs.
Balsam.....	1922	Simcoe Co.	5	1	8	7	8
Cedar, White.....	1922	Simcoe Co.	5	..	12	3	12
Larch, Japan.....	1921	Denmark	1	1	..	1	..
Pine, Red.....	1921	Simcoe Co.	10	..	12	7	8
Pine, Scotch.....	1922	Norfolk Co.	5	..	10	4	2
Pine, Scotch.....	1022	Norfolk Co.	2 (ex- peri- men- tal)	..	5	..	10
Pine, White.....	1922	Simcoe Co.	60	1	8	90	..
Spruce, White.....	1922	Simcoe Co.	4	1	..	4	..
Totals.....			92	.....	.....	118	8

Work on fall seed beds commenced November 1st and, when weather conditions compelled a cessation of work on November 15th, a total of 78 beds had been sown.

FALL SOWING OF CONIFEROUS BEDS

SPECIES	Collected	Origin	No. of Beds sown	Amount Seed per Bed		Totals	
				lbs.	ozs.	lbs.	ozs.
Balsam.....	1922	Simcoe Co.	2	1	10	3	4
Cedar, White.....	1922	Simcoe Co.	10	..	14	9	2
Pine, Red.....	1923	Simcoe Co.	36	..	12	27	..
Pine, White.....	1922	Simcoe Co.	30	1	8	45	..
Totals.....			78	.....	.....	84	6

A small quantity of hardwood seed was also sown, the seeding roller used so successfully last year being employed throughout except for walnuts which were "dibbled in."

SOWING OF HARDWOOD SEED

SPECIES	Origin	Date of Sowing	Amount of Seed Sown bushels
White Ash.....	Prince Edward County	April 15	5
Hard Maple.....	Prince Edward County	April 20	5
Soft Maple.....	Prince Edward County and York County	June 21	6
White Elm.....	York County	June 23	$\frac{1}{4}$
Walnut.....	Durham County	November 20	20
Hard Maple.....	Lanark County	November 23	$\frac{1}{2}$
Totals.....			$36\frac{3}{4}$

Nursery Lines.—During the spring, 760,000 seedlings of various species were received from St. Williams and transplanted in beds. The Yale Transplant Board was used throughout.

SPRING TRANSPLANTING OF SEEDLINGS

SPECIES	Age	Number received
Scotch Pine.....	2 years	138,000
Jack Pine.....	2 years	163,000
Red Pine.....	1 year	380,000
European Larch.....	1 year	69,000
Totals.....		750,000

In the autumn transplanting commenced on August 27th and the quota from St. Williams was completed September 20th. During this period 925,000 seedlings were received and transplanted.

FALL TRANSPLANTING OF SEEDLINGS

SPECIES	Age	Number received
White Pine.....	1 year	210,000
White Pine.....	2 years	270,000
White Spruce.....	2 years	175,000
Norway Spruce.....	2 years	98,000
White Cedar.....	2 years	42,000
Red Pine.....	1 year	130,000
Total.....		925 000

STOCK ON HAND DECEMBER 15, 1923

HARDWOODS:

Ash, White.....	33,250	
Butternut.....	3,900	
Elm, White.....	7,300	
Maple, Hard.....	42,000	
Maple, Red.....	94,750	
Maple, Silver.....	26,500	
Walnut.....	1,150	
Willow Cuttings.....	200,000	
		408,850

CONIFERS:

Balsam.....	125,000	
Cedar, White.....	132,000	
Larch, European.....	55,000	
Larch, Japanese.....	10,000	
Pine, Jack.....	155,000	
Pine, Red.....	622,000	
Pine, Scotch.....	329,250	
Pine, White.....	1,105,000	
Spruce, White.....	342,500	
Spruce, Norway.....	170,000	
		3,045,750

Grand total..... 3,454,600

Fertilizers.—The greater part of the operations in connection with the nursery area were confined to cultural operations for soil fertility, upbuilding and tilth improvement. In this connection a crop of Fall rye was ploughed under in May and buckwheat, planted immediately after as a weed eradicator, was ploughed under in early July. An application of hydrated lime was also made to correct soil acidity.

Fertilizers, other than green manures, applied during the year may be summarized as follows:

Animal		Mineral			
Manure (tons)	Dried Blood (lbs.)	Acid Phosphate (lbs.)	Sulph. of Ammonia (lbs.)	Mur. of Pot. (lbs.)	Hyd. Lime (tons)
34	250	400	125	250	15

Additions to Property.—During the early part of the year one of the two houses situated on the property was completely renovated and enlarged by one room to accommodate the sub-foreman. The interior was replastered and redecorated. A shed at the rear of this house was also painted and made weather tight to serve as a temporary tool-house and work-shop.

A headquarters house was built, consisting of seven rooms and an office. The house is frame, 30' x 30', and is of the storey and a half bungalow type. The headquarters was also connected with the Hydro-Electric system in the village. Construction of the necessary 1,000 feet of line was carried out in such a manner as to permit of the development of power should this later be considered advisable.

Roads.—The road connecting the forest station with the village was placed on a permanent basis, while several of the more necessary nursery roads were lined out, graded and gravelled to improve internal communication.

SIMCOE COUNTY—(MIDHURST)

Spring transplanting commenced on April 26th, and continued till May 30th. The seedlings were received from the St. Williams Station.

SPRING TRANSPLANTING

SPECIES	Age (years)	No. of Plants
European Larch.....	1	170,000
Red Pine.....	1	338,000
Scotch Pine.....	2	121,000
Jack Pine.....	2	258,000
Total.....		887,000

Fall transplanting commenced on August 22nd and finished on September 9th. A few hardwoods were transplanted on November 10th. The fall stock was also received from St. Williams.

FALL TRANSPLANTING

SPECIES	Age (years)	No. of Plants
White Pine.....	2	295,000
White Pine.....	1	240,000
White Spruce.....	2	125,000
Norway Spruce.....	2	80,000
Red Pine.....	1	137,000
White Cedar.....	2	45,000
Honey Locust.....	1	2,000
Hard Maple.....	1	4,000
White Elm.....	1	5,000
Total.....		933,000

Total number of transplants 1,820,000.

Extensive seed bed work was not undertaken this year on account of lack of watering facilities. Four seed beds of white pine, jack pine, Scotch pine and white spruce were sown on May 25th as an experiment. These did well. It is intended to put in a large number of seed beds in the spring as a water system will be installed.

Forty-five acres of old stump land were planted with Scotch and jack pine. These were quite successful in protected places, but on open plains on account of prolonged drought the grasshoppers played havoc with plantations. Planting next spring will largely be shelter belts and hedges. Two mixed hardwood plantations were also planted, and these did extra well.

The nursery ground has been manured and worked. Cow peas were grown as a soiling crop. It is thought that this is too far north as they did not develop well, but no definite conclusions can be drawn as this was an exceptionally dry season. Owing to the dry summer seeds sown in June never germinated. Seventeen acres of rye were sown this fall to be turned under next summer. Buckwheat was also used as a soiling crop. Five acres were stumped and cleaned up.

Silviculture.—During the fall improvement cuttings in second growth maple, ash, elm oak and poplar were carried on. Weed trees, badly formed trees, and standing dead timber were cut for cord wood. Piling and burning and lopping were used in brush disposal.

During early winter a swamp is to be cleaned up. Considerable cutting was done a few years back leaving tops and debris. This, along with standing dead timber, will be worked up into wood, and we propose burning brush next spring.

Additions to Property.—Considerable building has been done this year. Foreman's and teamster's houses have been erected; the former is 26' x 30', a two storey frame house; the latter is 28' x 24', a semi bungalow type. Both houses are completed and occupied. A driving shed 101' x 30' was constructed with steel siding and shingles. In one end is a work-shop and tool-house. An up-to-date stable was also built. The stable is cement with a large loft sided and shingled with steel. The stable accommodates nineteen horses, and is equipped with B.T. steel equipment. A pumping house 14' x 20' is partially constructed.

Water System.—There is a spring creek that has its origin on the property, and it is proposed to pump water from this spring into a 20,000 gallon tank for seed bed work. The water is flowing at the rate of 9,000 gallons per hour.

A concrete dam has been built forming a reservoir from which to pump water. Buttments for water tank are ready and 4" iron piping, connecting pumping station and water tower, is laid, 4" iron piping from tower to buildings is also laid and this is tapped by 1" piping for houses, stable and shed. Water will be available in the spring as soon as tank and pumping units are installed.

Fencing.—500 rods of wire fencing has been constructed. A creosoting plant consisting of an iron tank and a wood tank were installed. A large number of butts of posts were creosoted, 250 posts from Simcoe County plantation were also creosoted.

Roads.—A beginning has been made in roads through second growth hardwoods. On account of gravel being within a mile of station we were able to do considerable gravelling of roads around buildings, and to water tower and pumping station.

Survey.—A base line was laid through station by transit. Using this transit line as base line a plane table survey of property was made.

NURSERY STOCK ON HAND, DECEMBER, 1923

HARDWOODS:

Honey Locust.....	2,000	
Hard Maple.....	4,000	
White Elm.....	5,000	
Butternut.....	22,000	
		33,000

CONIFERS:

White Pine.....	515,000	
Red Pine.....	315,000	
Scotch Pine.....	380,000	
Jack Pine.....	350,000	
European Larch.....	150,000	
Norway Spruce.....	80,000	
White Spruce.....	225,000	
White Cedar.....	45,000	
		2,060,000
Grand total.....		2,093,000

KEMPTVILLE TRANSPLANT NURSERY

A small nursery has been established this year, in conjunction with the Kemptville Agricultural School. An area of two acres has been set aside, to be enlarged as needed, on which three hundred thousand transplants were set out. These will be used as a demonstration of tree growing for the students of the school and will be supplied to private land-owners in the eastern part of the Province for reforestation work.

FOREST PLANTATIONS

SAND BANKS

The work done on the Sand Banks of Prince Edward County thus far has shown that only trees which will grow under the most adverse conditions are of use in work of this kind. The two trees used most up to the present are green willow and Carolina poplar, limb material being used on the exposed areas and cuttings on the protected places. As suitable willow material for this work is available in large quantities close by, an effort was made to get as much as possible, to stem the march of the sand. In all during the year one hundred and sixty-five cords were planted as well as several thousand cuttings.

One of the chief difficulties in this work is to prevent the sand from covering the planted areas during the time of a severe wind storm. The time of the year when this sort of damage is most severe is in winter when the sand mingles with snow, or rides rapidly over it accumulating, in some places, several feet deep. To prevent such drifting, catch fences have been erected at regular intervals and at right angles to the direction of greatest drift. These are made of brush woven on wire, laths woven on wire and eight foot plank stood on end. Such fences catch the sand much in the same way as snow fences behave on a railroad right-of-way, and prevent excessive drifting and give the trees a chance to become established.

During the summer 2,000 feet of plank fence and 3,000 feet of lath and brush fence were erected for this purpose.

Besides the work of planting on the Sand Banks some six acres have been prepared for nursery work and are being used for transplants. Material of this kind growing at the station is as follows:

HARDWOODS

Ash, White.....	8,300	
Walnut.....	15,450	
Butternut.....	11,000	
Red Oak.....	1,100	
Soft Maple.....	250	
Hard Maple.....	20,300	
Honey Locust.....	7,000	
Elm.....	4,200	
		67,600

CONIFERS

Scotch Pine.....	156,400	
Jack Pine.....	684,500	
Red Pine.....	74,000	
White Pine.....	46,300	
White Spruce.....	214,100	
Norway Spruce.....	24,500	
Cedar, White.....	72,800	
European Larch.....	20,000	
		1,292,600

Grand total..... 1,449,600

HENDRIE

Permanent planting and transplanting seedlings from the St. Williams Station was done.

Scotch and jack pine were used in permanent planting. Part of planting material was received from St. Williams and the rest was taken from nursery lines at the plantation. 163 acres were planted with Scotch and jack pine. Fail places in 1922 plantations were planted up. Additional hedges were planted around nursery land for windbreaks.

SPRING TRANSPLANTING

SPECIES	Age, Year	No. of Plants
Jack Pine.....	2	500,000
Red Pine.....	1	200,000
Scotch Pine.....	2	65,000
European Larch.....	1	82,000
Elm.....	1	35,000
Total.....	..	882,000

FALL TRANSPLANTING

SPECIES	Age, Year	No. of Plants
White Pine.....	2	69,000
White Spruce.....	2	242,000
White Cedar.....	2	25,000
Red Pine.....	1	85,000
Total.....	..	321,000

Total Transplants..... 1,203,000

Roads.—The 1,000 acre block has been divided into compartments. Old roads were used as much as possible as boundaries of these compartments. These roads, along with other roads, made to separate compartments, have been plowed and stumps cleaned out. These roads will be maintained as fire roads.

Fencing.—A woven wire fence was constructed around the 1,000 acre block. This took 1,300 rods of fencing.

NURSERY STOCK ON HAND DECEMBER, 1923

HARDWOODS

Walnut.....	5,000
Butternut.....	4,000
Soft Maple.....	2,000
Sugar Maple.....	14,000
White Ash.....	12,000
	<hr/> 55,000

CONIFERS

Jack Pine.....	446,000	
Scotch Pine.....	50,000	
Red Pine.....	220,000	
White Pine.....	210,000	
European Larch.....	60,000	
White Spruce.....	425,000	
White Cedar.....	45,000	
		1,456,000
Grand total.....		1,511,000

SUMMARY OF TREES GROWING IN NURSERIES

Norfolk County (St. Williams).....	16,411,230
Durham County (Orono).....	3,454,600
Simcoe County (Midhurst).....	2,093,000
Hendrie.....	1,511,000
Sand Banks.....	1,449,000
Kemptville.....	300,000
Total.....	25,218,830

TREE PLANTING

PRIVATE PLANTING

This work was carried on in the same manner as in previous years. More applications were received than could be filled and for work of this kind 602 separate persons received material for either commencing a new woodlot or for improving their existing one.

DEMONSTRATION PLOTS

During the winter of the current year, municipalities were interested in establishing demonstration plots, in order to bring before their local residents the value of planting trees on non-agricultural land. Several hundred circulars were distributed (under the caption "Municipal Demonstration Plots") to township councils throughout southern old Ontario where work of this kind would be most profitable.

The following new plots were established during the spring planting season:

ALBEMARLE (EAST)—BRUCE COUNTY

Situated about one mile west of Colpoys Bay post office on the main road north. A fifteen acre plot, seven of which were planted this year with 2,000 Scotch pine, 6,200 jack pine and 750 mixed hardwoods.

ALBERMARLE (WEST)—BRUCE COUNTY

Situated one mile north of Red Bay school-house on the road to Howden Vale. A five acre plot of light sand planted with 4,000 jack pine and 2,000 Scotch pine.

INNISFIL (COMMUNITY PARK)—SIMCOE

This plot forms a part of the township's 100 acre community park on the shores of Lake Simcoe. The trees were planted on a part of a thirty acre block bordering two roadways, set aside for demonstration purposes. This year there were planted 2,500 Scotch pine, and 2,000 jack pine.

INNISFIL (PROVINCIAL HIGHWAY)—SIMCOE COUNTY

Situated on the Provincial Highway to Barrie at the corner of the 7th Concession Road. A field of light land, a part of which was planted with 2,000 Scotch pine, 2,000 jack pine and 500 soft maple.

KEMPTVILLE AGRICULTURAL SCHOOL—GRENVILLE COUNTY

This plot forms a part of the school property, is about twenty acres in size and extends along the Ottawa-Prescott Highway. This year ten acres were set out with 6,000 Scotch pine, 6,000 jack pine, 300 soft maple, 500 walnut and 100 butternut.

MOUNTAIN VILLAGE—DUNDAS COUNTY

This plot forms part of the village community park. Three acres were set out with 2,500 Scotch pine and 2,500 jack pine, 200 elm and 200 soft maple.

Of the plots already established, the following have either had their areas extended or have been supplemented where necessary with new trees:

Beeton Village	—10,000 Scotch pine, 40,000 jack pine.
Burford Township	—500 Scotch pine, 500 red oak, 1,500 soft maple, 500 elm.
Colborne Township	—1,000 Scotch pine, 5,000 jack pine.
Cramahe Township	—1,000 Scotch pine, 4,000 jack pine, 2,000 poplar.
Darlington Township	—1,000 Scotch pine, 200 walnut, 200 red oak.
Essa Township	—2,000 Scotch pine, 6,000 jack pine, 1,000 poplar.
Norfolk County	—10,000 Scotch pine, 40,000 jack pine.
Plantagenet Township	—3,000 Scotch pine, 4,000 jack pine.
Sunnidale Township	—3,000 Scotch pine, 9,000 jack pine, 6,000 poplar.

INSPECTION

The inspection of plantations owned by individuals and supplied with material from the Ontario Forestry Branch, was carried on from the point reached last summer (1922).

The area covered comprises the counties of Bruce, Huron, Kent, Essex, and Norfolk. The last named county supports a great number of these plantations (considerably greater than any of the others). This is due to the proximity of the St. Williams Forest Station from which trees may be fetched personally by those who wish to plant them. The total number of plantations in Norfolk County, including those under 500 trees and those planted this year, amounts to 280. The next county to this is York with 138 plantations.

A total of 124 plantations were visited, which are apportioned among the counties as follows:

Norfolk.....	72
Kent.....	15
Essex.....	8
Bruce.....	13
Huron.....	16

These plantations are of all ages and size, ranging from those planted in the spring of 1922 to those commenced in 1907 and 1908. The individual area averages approximately one and a half acres. As regards the general success of these plantings 84.7 per cent. have made good where the test is a survival of 33 per cent. of trees in each case.

There was very little sign of disease among the trees. A few of the white pine plantations have been attacked by the weevil, but in no case to any serious extent. The Scotch pine are invariably in a healthy condition.

SUMMARY OF TREES PLANTED PERMANENTLY, 1923

	Misc. Species	Scotch Pine	Jack Pine	Walnut	Butter- nut	Hard Maple	Soft Maple	Red Oak	White Ash	Poplar Cut- tings	Willow Cut- tings	Elm	Black Locust	Mani- toba Maple
Private Planting.....	.....	352,414	212,742	23,407	3,002	14,520	28,035	15,162	3,410	24,659	10,081	12,186	.....	.....
Demonstration Plots.....	.....	52,000	132,000	4,900	150	50	6,150	700	.....	9,500	.....	1,100	.....	.....
Sand Banks.....	.....	7,000	6,900	.....	.....	400	1,300	100	200	65,000	75,000	1,000	100	400
Simcoe County.....	37,500	141,750	99,750	.....	.....	.....	160 cords of limb material = 3,750	.....	.....	2,250	562,500	.....	.....	.....
Totals.....	37,500	553,164	451,392	28,307	3,152	14,970	39,235	15,962	3,610	101,409	647,581	14,286	100	400

Grand total, 1,911,068.

SEED COLLECTING

The season of 1923 was the best seed year for red pine in the history of the Branch. The centre of the work, as in previous years, was at Angus in Simcoe County, but an effort was made to secure cones anywhere in Ontario where it was known suitable trees are located.

A circular was published entitled "Gathering Red Pine Cones for the Ontario Government," which was distributed freely throughout the Province, and this, together with newspaper advertisements and dodgers, reached hundreds of people who were interested in the work. The total number of bushels gathered from all parts of the Province was 3,126.

In order to handle more adequately the work of seed collecting and extracting, a station of a permanent nature was opened at Angus. Two acres of land were purchased in the village on the railroad and a building was erected, to serve as a receiving centre for cones and as a plant for extracting purposes. The plant consists of eight drums, each 6' x 3', and has a capacity of twenty-five bushels of red pine cones a day.

IV.—FOREST PATHOLOGY

(Report of Dr. J. H. Faull for 1923)

I. INTRODUCTION

Several important problems both from the standpoint of utilization and of conservation have received attention during the year. Some have been brought to a solution—the nature of the needle blight of white pine and its effect on reproduction; the diagnosis of the various types of heart and butt rots of balsam and in part of spruce, and the determination of their causes; the diagnosis and determination of the cause of a prevalent heart rot of birch; the life history of certain fungi causing needle diseases. Progress can be reported also on other problems—spruce diseases; the determination of the age of susceptibility to trunk diseases; the effect of various fungi on the growth of the timber attacked. New problems have been presented; among them two appear particularly attractive, namely, the nature of "red" jack pine (pertinent to the culling of ties), and the pathology of young stands of conifers (important in relation to reforestation). Numerous inquiries on pathological matters have been received such as, the means of preventing doze in freshly cut birch (applications of zinc chloride solution appear to give every promise of success); the cause and control of bald spots in coniferous seed beds (in the case in question apparently due to local over-fertilization); factors favouring deterioration of hardwood and coniferous pulpwoods in the log and in the piles. A few tree diseases newly observed in Ontario have been reported by correspondents and their causes as indicated verified, for example, a twig blight of Manitoba maple caused by *Coryneum negundinis* B. & C. (detected by Professor J. E. Howitt and Dr. R. E. Stone of the Ontario Agricultural College), and bark blight of the American chestnut (due to the very destructive fungus, *Endothia parasitica*). The latter is serious so far as chestnut growing is concerned as most of the existing trees of this species, *Castanea dentata*, are probably doomed. Directly and incidentally valuable additions have been made to our reference pathological collections.

Three technical papers, outgrowths of this work, and one semi-technical paper have been published apart from the annual reports in 1922-23.

Bell, G. H. —Fern Rusts of Abies. Botanical Gazette. (In press.)

Faull, J. H. —Forest Pathology in Relation to Forest Conservation. 14th Annual Report of the Quebec Society for the Protection of Plants. 1922.

Fritz, C. W.—Cultural Criteria for the Distinction of Wood-destroying Fungi. Transactions of the Royal Society of Canada. 1923.

Moss, E. H.—Observations on Two Poplar Cankers in Ontario. Phytopathology, Vol. XII, 1922.

The field work for 1923 was carried on mainly in the Timagami Forest Reserve, but in May a careful examination of diseased birch was made at Cache Lake in Algonquin Park, and Dr. Faull was permitted to transfer to the service of the Laurentide Company, Quebec, during July and August, to direct the assembling and grading of defective balsam and spruce for an extensive utilization experiment on pulpwood carried out under the auspices of the Technical Association of the Pulp and Paper Industry, the News Print Service Bureau, the Forests Products Laboratory at Madison, and a number of interested companies. As in the past there has been active co-operation between the Ontario Forestry Branch and the Provincial University. Besides to those directly associated in the office, field, or laboratory who have aided in carrying forward the year's work, an expression of appreciation is especially due Mr. C. E. Hindson, Chief Ranger of the Timagami Forest Reserve, and Mr. Mark Robinson, Superintendent of Algonquin Park. A summary of three researches completed in the past season follows.

II. "SAPIN ROUGE" OR RED HEART ROT OF BALSAM, ITS CAUSE AND ITS RELATION TO SLASH DISPOSAL.

Because of the increasing scarcity of spruce, the newsprint pulp industries are now relying more and more on the balsam forests of Eastern Canada for their supplies of raw materials. But these heretofore neglected forests prove to be frequently overmature and highly defective, hence an acute problem of utilization looms large on the horizon at present. Linked with this problem is that of the maintenance of the forests. In the forests of to-morrow, balsam is bound to have a place; it grows rapidly, it re-forests readily without planting, is especially well adapted to our soil and climate, and its wood makes a good quality of pulp. The call, therefore, is urgent for a maximum utilization of our diseased virgin forests as we find them and the production of healthy forests for the future.

A study of the pathology of balsam in these connections has revealed an almost unexplored field. One of the amazing features has been the encountering of a prevalent trunk disease, a heart rot of living trees, the bane of operators, often disastrously so, since fifty per cent. or more of affected stands may be discarded as unmerchantable, about the cause of which and its mode of spread and establishment nothing has been known. Trees affected with it are individually designated *sapin rouge* by the French-Canadian lumberjacks. The disease has been called "hemlock rot of balsam," but the name *red heart rot of balsam* based on the French appellation seems more appropriate.

"Sapin rouge" obtruded itself upon the attention of operators when they first began to cautiously introduce a few balsam logs into their cuts. It was an annoyance and a loss. "Sapin rouge" was believed to be worthless for pulp, it was not possible without experience and close observation to detect it before

fellings a tree, and if made up into logs it was closely culled. Affected logs were called "sinkers"; to what extent this name reflected prejudice remains to be seen.

If utilizable the question of the floating capacity of red heart rot balsam becomes of the first importance where the timber is transported by waterways. That some of it will float for a sufficiently long time is evidenced by the fact that an appreciable percentage of it can be found in the mill log piles from drives that have lasted up to two years. Knowing of the pains that are taken in the forest to exclude it from the cut, it is a fair assumption that the number of affected logs placed on the skids along the waterways is not greatly diminished by the time the destination is reached. However, this is not a matter for speculation, it can be readily determined by direct experiment. To be conclusive the larger the number included in a test the better, they should be intermixed with many sound logs cut from the same area as controls, and at the close of the experiment all the logs employed should be available for checking.

Red heart rot is very easily recognized in the log, and is not likely to be confused with any other disease of the balsam. The defective wood almost never occurs in the stump, but is found beginning in the main trunk above breast height. Most frequently it centres at about half way up the length of the trunk, and extends from there for long distances in both directions. The affected wood is inclined to be wetter and hence heavier than normal wood at the time of cutting from living trees. Its colour is a rather bright yellowish brown, often radiately figured or irregularly mottled by lighter less decayed patches, all rendered the more striking by contrast with the encircling outer zone of pure white sapwood. The texture remains remarkably firm for a long time, free from pockets, checks or cavities of any kind, and the wood "fibres out" in shavings very much the same as normal wood. It is of course softer than sound wood and in sawing and chipping greater waste is to be anticipated. Eventually soft streaks develop and there is a tendency towards delamination, but these features are late in appearing. The fibres seem to remain intact for a long time and to retain most of their cellulose.

The rot enters most frequently by way of dead branches in the lower part of the crown; such branches decay away leaving yellowish rotten stubs—they serve as a means of detecting diseased trees. Infection may also take place through wounds, frost cracks or injured tops. When decay once starts it spreads very rapidly in a vertical direction, and involves almost at once all but an outer zone of sapwood. So it is that a log or bolt may exhibit a fairly uniform stage and amount of the rot throughout its full length. On tracing the rot downwards in the trunk into sound wood it is found to be continuous with "frost patches" or watery looking areas, commonly evident in balsam at the time of felling; the decay progresses rapidly along these watery streaks which extend continuously for long distances vertically through the trunk. Finally the disease works out to the bark, killing the tree; but the decay continues in dead standing trees or in fallen trunks and slash until all of the wood is involved. Quite commonly affected trunks break off, sometimes a short distance from the top but oftener farther down, so that "chicots" or stubs of all heights are to be seen in large numbers throughout a badly infested region.

The cause of red heart rot, previously unknown, has been determined in connection with our work of the past season. Two years ago inoculations on to artificial media in the laboratory from diseased wood were made which showed at once that the trouble was due to a fungus. Cultures have been maintained ever since for the purposes of study and in the hope that they would fruit,

thus making identification possible; fruits finally developed in August, 1923. Meanwhile opportunity was afforded during the summer of 1923 to concentrate on red heart rot in the field while engaged in assembling materials for utilization tests of defective pulpwoods. Field observations revealed abundant instances of the association of fungus fruit bodies, always of the same kind, with this type of heart rot. This fungus (*Stereum sanguinolentum*) fruits in great profusion on dead trees, brush, and fallen trunks. While the indications as seen in the forest that *Stereum sanguinolentum* is the cause of red heart rot of balsam were convincing, additional evidence was essential. This was supplied by the artificial cultures referred to above. In December last Miss Irene Mounce thoroughly sterilized pieces of sound wood in test tubes plugged with cotton wool and inoculated them with incipient red heart rot from living trees. Well developed fruit bodies of *Stereum sanguinolentum* had formed in them before the end of August, that is within eight months following inoculation.

The fructifications of *Stereum sanguinolentum* are small, thin, leathery, scale or bracket-like bodies one-half inch to one inch in width growing out in flocks from dead standing timber, or the sides of fallen trunks and brush. When growing on the under sides of fallen trunks or brush they are closely appressed, brown or drabish, smooth, fungal patches of varying size. The bracket-like bodies are downy or silky on the upper surface, buff or pinkish-buff to dark ash-coloured, and marked with darker, narrow, concentric bands. The lower surface is smooth and drab to brownish in colour. One of the distinctive features of either type of fructification is the fact that its edge or its smooth surface turns blood-red where bruised.

Red heart rot of balsam occurs in Ontario, Quebec, and Maine, and will probably be found throughout the range of the balsam. It is especially prevalent in balsam forests that have been ravished by the spruce budworm. Is it susceptible to control?

The first step towards control of a parasite is a knowledge of its life history; measures adopted can then be rationally based on known grounds. We now know that red heart rot of balsam or "sapin rouge" is due to *Stereum sanguinolentum* and we know where this fungus fruits, that is we have located the source of the germs or spores that are responsible for its spread. There is yet one important point that is not fully determined, that is the age at which the balsam becomes susceptible. Preliminary analyses indicate that this takes place in general as the balsam approaches maturity. If this may be tentatively assumed then two procedures are suggested, both of which would result in the prevention of infection, one from the standpoint of the host, the other from that of the parasite, and both are matters of forest management. In the one case the adoption of a cutting cycle within the period of immunity would automatically ensure freedom from the disease. In the other case burning of slash would prevent the development of fructifications and so cut off the source of the spores. The value of slash burning would probably be affected by the amount of dead trunks and brush on the floor of the forest included in the burning process. A combination of cycle cutting and slash burning would seem to assure complete control.

III. TYPES OF DEFECTIVE BALSAM AND SPRUCE PULPWOOD IN RELATION TO THE PROBLEM OF UTILIZATION.

For several years past the Ontario Forestry Branch has been carrying on studies of the diseases of pulpwoods, and especially of the trunk diseases of balsam and spruce. These studies have embraced a determination of their

cause, their nature, their effect on the wood, and factors having a bearing on control. The economic waste from trunk diseases in mature forests becomes stupendous, and dead and wind-thrown trees add tremendously to the fire hazard. Eventually systems of management may be put into operation that will largely solve the disease problem, but this lies some distance in the future. Meanwhile attempts will be made to utilize what has been regarded as waste because of defects. Apart altogether from a sudden expansion of the volume of supplies, successful utilization would at one stroke conserve and improve our existing forests. A preliminary report on tests now in progress (The Paper and Pulp Industry, Vol. 4, Nov. 15, 1923) arouses hope that may be practicable.

"The cooking was done by the sulphite process in the manner in which experience has shown will give the maximum yield of news grade sulphite.

"In the results so far obtained, it would appear that in some instances, contrary to previous conclusions, the decayed wood has a higher specific gravity than sound wood and what is more surprising has a higher yield of pulp.

"In one case where balsam, infected with *hemlock heart rot* contained 55 per cent. of rot, its specific gravity was 20.95 lb. per cubic foot compared with 20.75 lb. per cubic foot for sound balsam. In another sample of spruce which contained 96 per cent. of rot of *Trametes pini* type the weight per cubic foot was 22.3 lb. and the yield was 52.2 per cent.

"From the limited evidence at hand, it would appear that the action of the decay may have affected the *lignocellulose* without materially attacking the cellulose in the wood. It would also appear very possible that most of the wood which is normally discarded in the woods or diverted to the boiler-house as fuel might be economically pulped."

There are many common trunk diseases of balsam and spruce, of varying abundance in different areas. Some are found in living trees, some in dead timber. The effect produced by them on the wood of their hosts is specific, and is characteristic for each kind. Some of them are characterized by a removal of the cellulose from the fibres leaving them too brittle to be of any value, others by a complete destruction of the fibres in advanced stages, and others by a removal of the encrusting substances in the fibres without serious injury to them. Of the diseases of living trees there are some that are restricted to the butt, others to the main trunk. In nearly every case the characters are well-marked and the various types can usually be quite readily diagnosed. The following account comprises those of economic importance in the forest.

A. *Types of defective balsam.* (1) *Brown butt rot of balsam.*—This is a decay of the heart wood of the lower part of the trunk and the contiguous roots of living trees. The affected heart wood loses its firm consistency, then darkens more or less in colour, dries out and breaks up more or less into blocks. Cracks between the broken masses may fill with indefinite, delicate, white fungus sheets. The fully decayed wood powders very easily if rubbed between the fingers just as does chalk or charcoal, that is, it is very friable; this is due to the removal of cellulose from the wood fibres, the substance to which they owe their toughness, so that what is left consists mainly of an easily powdered, encrusting substance, *lignin*. This rot usually starts at wounds or defective spots on the inner faces of the main roots just below the stump. It develops upwards into the trunk but for not more than a few feet as a rule. It will eventually extend out to the bark if the tree be not wind thrown meanwhile, but as yet we have no data on the time factor.

The cause of brown butt rot of balsam was discovered about three years ago in connection with our investigations. Independent observations based on

comprehensive, carefully executed laboratory tests, made by Dr. E. E. Hubert of the U. S. Forest Products Laboratory, fully confirm our findings. The cause is a fungus, *Polyporus balsameus*, the fructifications of which make their appearance on the surface of the trunk near the ground, or on the exposed wood where a diseased tree has cracked or broken over. They are not especially common, but by no means infrequent during wet summers or early autumns. They are small shelf-like bodies, occurring singly, or more typically, several closely superposed, thin, tough, white below, and white to brownish on the upper surface. The upper surface is rather faintly zoned. They vary in size from one-half inch to one and one-half inches in width.

Brown heart rot when developed to the friable stage is certainly of no value for pulp, and in earlier stages the affected fibres are weakened to a greater or less extent. The actual loss in cutting operations usually amounts to a short butt log. How much should be rejected would appear to depend in part on floating capacity (of which no definite data are at hand) and in part on the relative amounts of sound and diseased wood. The latter is valueless. The principal economic loss caused by brown butt rot results from windfalls due to the weakening of the base of the trunk; and with openings once made in the forest the destruction may be very great, involving sound as well as diseased trees.

(2) *Feather rot of balsam*.—Feather rot is a decay of the heart wood of the lower part of the trunk and the contiguous roots of living trees. It is a butt rot. The affected wood as it decays changes in colour to clay or buff colour. It is soon marked by tiny longitudinal pockets or cavities of indefinite length arranged in close concentric series, typically a single row in the fall wood of each annual ring. This results in the delamination or flaking of the wood, the decayed wood readily falling into sheets, each sheet consisting of an annual ring. The surfaces of the sheets are more or less etched. In some cases there is a tendency for radial perforations to form quite early in the course of decay, often before there is any indication of delamination. Eventually there is a shredding of the wood due to radial deepening of the longitudinal furrows. This continues until the wood is reduced to cottony shreds, with at the same time a fading of colour. In extreme cases the shreds may disappear to a greater or less extent, leaving the butt hollow. One of the curious features of feather rot is the frequent occurrence, especially in the advanced stages, of small black spots.

This rot usually begins at wounds or defective spots on the inner faces of the main roots just below the stump. It develops upwards into the trunk but for not more than a few feet as a rule, perhaps not as far as does the brown butt rot. In the course of time it extends out to the bark if the tree be not wind-thrown meanwhile. Feather rot continues to spread through the wood of dead or fallen trees until at last the wood of the entire trunk may be converted into a wet, stringy, yellowish mass.

While the detailed appearance of feather rot is somewhat variable, its general features are so well marked that it cannot be mistaken. It may be that the variation is due to the action of different fungi, in which case the type would consist of two or more sub-types; or the variation may be due to the action of secondary fungi following up the primary fungal agent. Further research alone will settle this point; but so far as I have been able to observe, the question is not one that enters into the problem of utilization. Our investigations have determined that a fungus, *Poria subacida*, produces feather rot. The fructifications make their appearance on the surface of the trunks of much decayed

standing or fallen trees. They are in the form of white effused patches of variable size, up to a foot or more in diameter, closely adherent to the trunk on which they grow. Their surfaces are very finely porous.

Feather rot, except in the later stages, is not marked by an excessive weakening of the fibres—apparently the cellulose is more resistant to the action of the causal fungus than is the lignin. The actual loss in ordinary cutting operations usually amounts to a short butt log; it is doubtful if even this is necessary. Since feather rot may be present to the extent of fifty per cent. in some stands the avoidance of such a loss would not be inconsiderable. There is also a large loss traceable to this rot from windfalls.

(3) *Red heart rot of balsam*.—Red heart rot (sapin rouge, or hemlock rot) is by far the most important disease in balsam from the standpoint of utilization. It is exceedingly prevalent. Fortunately the texture of the wood suffers less impairment than in the case of most other rots, and as indicated in the quotation introducing this section of the report, there are good grounds for anticipating profitable utilization of wood affected with it. For an account of red heart rot refer to the preceding section—"Sapin rouge, or Red Heart Rot of Balsam, etc."

(4) *Abietinus or honeycomb sap rot of balsam*.—This type of decay begins at the surface of dead standing or fallen timber, or slash, and works inwards; all parts of the tree are susceptible. It is one of the commonest of the diseases of dead coniferous timber, and it extends with amazing rapidity under suitable conditions of temperature and moisture. The affected wood turns a light straw colour. Very small empty pockets soon appear in the older decayed parts so that such wood is delicately honeycombed. It may continue inwards quite regularly—dependent on the moisture content of the wood—until all parts of the trunk and branches are involved.

The cause is due to a fungus, *Polyporus abietinus*. The fructifications develop very abundantly; hundreds of them may be seen scattered about in flocks on the surface of diseased timber. They are bracket or scale shaped, thin, tough, small (one-half inch to one and one-half inches in width), white or purplish when young, ash-coloured to blackish with age, downy and somewhat zonate. The lower surface is purplish, but this colour may fade to a cream or bay; it is also porous.

Abietinus rot is not marked by an excessive weakening of the fibres except in the later stages. The outer honeycombed wood, however, is valueless; moreover, it is largely worn away in handling before the mill is reached. In practice it would seem that where this rot is the only defect a great deal of dead wood could be profitably salvaged.

(5) *Brown sap rot of balsam*.—Brown sap rot begins at the surface of the trunks of dead standing and fallen balsam and works inwards. It is rather closely restricted to the trunk but may attack the larger branches. In spite of statements to the contrary it is doubtful that this is ever a disease of living trees, at all events there is no experimental evidence in support of such a claim. The affected wood darkens somewhat to a straw colour or dull light brown. Very soon the decayed wood dries out and cracks in various directions. The checks, large or small, that appear in this way fill up with delicate white sheets of fungus tissue. But there is another distinctive feature—the wood has become very friable, that is, it powders readily when rubbed between the thumb and fingers; this is due to the removal of cellulose from the fibres. The decay, once under way, extends in all directions, and very commonly in an irregular line across the grain; it develops rapidly along cracks or checks. Eventually all

of the wood is involved if favourable moisture conditions prevail, so that in the end it is converted into an easily powdered brown mass.

Brown sap rot is caused by a fungus, *Fomes pinicola*, the fructifications of which are of rather frequent occurrence, but as a rule only one or two or three on the same trunk or stump. They are large, thick, hoof-shaped, perennial brackets, up to six inches in width and two or more inches in thickness. Their upper surface is gray to blackish, with or without a red rim; it is also concentrically ridged and furrowed. The under surface is very finely and compactly porous, and whitish, buff, or cream-coloured. The substance of the interior of a fructification is especially distinctive as it is chamois or pale buff in colour and very felty tough.

Timber much affected with brown sap rot is of no value. In less severe cases difficulty might be experienced in grading closely because of the unevenness with which the decay extends.

(6) *Yellow sap rot of balsam*.—This is a rot of the sapwood of dead standing or fallen timber. It is caused by the same fungus agent as that which causes red heart rot or sapin rouge, namely, *Stereum sanguinolentum*. The general features of the decay are the same as were described under the heading, "Red heart rot of balsam," except that the decay is more uniform and freer from mottling. It resembles the abietinus rot except that there is no honeycombing. As with the heart rot, the affected sap wood remains firm and hard for a long time so that it is doubtful if its pulping value is materially lessened, at all events in the earlier stages. A great many dead trees and chicots or stubs have been found in the course of our field work, suffering from no other defect, and from which much timber could apparently be salvaged.

B. *Types of defective spruce*. (1) *Brown butt rot of spruce*.—This type of decay is like the brown butt rot of balsam. The cause has not yet been definitely determined, in other respects a separate account here is not necessary.

(2) *Abietinus or honeycomb sap rot of spruce*.—This decay of spruce is like the abietinus rot of balsam, and the cause is the same.

(3) *Brown sap rot of spruce*.—This decay of spruce is like the brown sap rot of balsam, and the cause is the same.

(4) *Pecky heart rot of spruce*.—This rot is also known as "ring shake." It is a heart rot and quite commonly extends through all of the trunk. Occasionally the stump and main roots may be affected, though not as a rule. A similar butt rot (apparently quite identical for all practical considerations) is due to an entirely different fungus. Pecky heart rot is primarily a disease of living timber, but continues to spread in dead or fallen timber; it is very common in spruce and pine; it is infrequent in balsam.

The affected heart wood in the course of decay darkens to some extent to a brownish or reddish colour. Very soon small white "pockets" begin to show at many points thickly scattered throughout the discoloured wood. The white pockets consist very largely of whitened, more or less separated fibres; this result is brought about by the localized removal of the lignin, and of the cement that holds the fibres together, so that in these spots the firm wood is changed to pure white, loose, cellulose fibres. With the progress of the decay the white patches enlarge until the affected wood is entirely filled with them. Eventually the white fibres may disappear, leaving the wood quite coarsely honeycombed, that is, full of small empty cavities separated from one another by thin partitions, but that comes about very tardily. This rot is one of the most easily recognized in cut timber because of its characteristic white "pockets" and is one of the best known because of its frequency in cheap grades of coniferous

lumber. The recognition of diseased trees is more difficult, but they can often be readily spotted by their rather swollen knots and by the presence of fruit bodies at the knots.

Infection takes place ordinarily through dead or broken branches, but may occur at wounds or frost cracks. Having gained entrance, the disease works directly into the heart wood, and from the level attained spreads upwards and downwards through the heart wood. Once established, the decay then extends outwards into the sap wood in all parts throughout the affected region of the trunk, and in time, if wind breakage does not happen meanwhile, the death of the tree is encompassed. The outermost zone of sap wood succumbs slowly, however.

The cause of pecky heart rot of spruce and other conifers is a fungus, *Trametes pini*. Its fructifications are not uncommon on living trees and are plentiful on slash and fallen timber. They are bracket shaped, unless growing on the under side of prostrate trunks, in which case they are effused. They are tawny or chocolate brown or even blackish and vary in size from one to three inches in width and one-quarter to one inch in thickness. The upper surface is irregular, ridged, hairy or roughened, and the lower surface is porous. The interior substance is of a yellowish brown colour.

It has already been pointed out that wood diseased to the extent of 96 per cent. with pecky heart rot gives a very high yield of sulphite pulp. This is due to the fact that the fibres are not destroyed by the action of the causal fungus until a very advanced stage is reached. It would seem, therefore, that this type of defective spruce might be extensively utilized. As a matter of fact, some of the spruce now reaching the mills is affected with pecky heart rot and finds its way to the digesters. Wherever trees are attacked this rot commonly involves the entire length of the trunk, and in some mature stands half or more of the spruce timber may be affected; utilization, therefore, would tap a considerable supply now wasted.

The control of pecky heart rot would follow along the same lines as for the control of the red heart rot of balsam. What was said in connection with the latter may in the main be repeated. The indications are that this disease is restricted to mature timber—though at what age spruce becomes susceptible has not yet been determined. If this may be tentatively assumed then two procedures are suggested, both of which would result in the prevention of infection, one from the standpoint of the host, the other from that of the parasite, and both are matters of forest management. In the one case the adoption of a cutting cycle within the period of immunity would automatically ensure freedom from disease. In the other case burning of slash would prevent the development of fructifications and so cut off the source of infection. The value of slash burning would probably be affected by the amount of dead trunks and brush on the floor of the forest included in the burning process. A combination of cycle cutting and slash burning would seem to assure complete control.

The adoption of such a system of management may be far in the future.—Meanwhile, immense quantities of pecky heart rot spruce are being left in the forest, timber that might possibly be used profitably from every point of view. Utilization in itself will be to some extent a measure of control.

The diseases of balsam and spruce described in the foregoing section are those of importance in the forest. Some of these continue to develop in the log piles, but besides them there are others not referred to which are peculiarly incident to the log piles at the mills or in logs long delayed *en route*. An investigation of the diseases of pulpwood timber subsequent to cutting would add a new chapter of useful information.

IV. *HYALOPSORA* FERN RUST OF BALSAM.

The foliage of the balsam is subject to the attacks of many rust fungi,—species of five or six well-marked genera. All of them are known to parasitize an alternate host, and, indeed, infection is never from balsam to balsam, but from alternate host to balsam. These hosts, depending on the particular kind of rust, include the willow, fireweed, chickweed, blueberry and the ferns. The chickweed rust causes the “witches’ brooms” common enough in some areas, but the others with one partial exception affect the needles only, and especially of seedlings and small trees. Injuries to the crown may at times be serious enough to cause a killing of young trees; this applies particularly to the fern rusts, although conditions during the past summer were so favourable to the fireweed rust in certain localities that pure natural stands of young balsams up to two feet in height were 100 per cent. affected and extremely heavily so. It is obvious that these rusts take a heavy toll at times and are a factor of consequence in reproduction.

The revealing of the course of the life history of the balsam rusts has resulted from the persistent experimentation of several distinguished students of plant diseases. Robert Hartig, whose work on the diseases of forest trees laid solid foundations for the science of Forest Pathology, discovered the connection between a rust on the balsam and blueberry rust in 1880; though the two are so unlike in appearance yet they were proved by cross-inoculations to be but phases of the same rust, and its continuance is dependent on the association of the two hosts. Klebahn discovered the fireweed balsam combination in 1898, Fischer the chickweed balsam combination in 1901, Fraser the willow balsam combination in 1911, and Fraser a fern balsam combination in 1912. All of these connections were established by careful, repeated cross-inoculations under controlled conditions.

A new rust on balsam has now been found in Ontario and Quebec and its connection with a long-known group of perplexing fern rusts (*Hyalopsora*) has been determined.

An immature stage of this rust was observed in the Timagami Forest Reserve by the writer in the summer of 1920, and the mature condition found by H. P. Bell in the same locality in the spring of 1922. It was found to be not infrequent in Timagami during the past summer, and fairly abundant in the eastern forests of Quebec. Unlike the majority of balsam rusts it is not evident on the needles of the current season; an immature stage (pycnial) shows on two-year-old needles, and the mature stage (aecial) on needles beginning their third year. Professor Bell named the phase on the balsam *Peridermium pycnoconspicuum* and made a few partially successful inoculation tests in 1922 that led him to tentatively recognize its connection with the *Hyalopsora* fern rust referred to above (*Hyalopsora aspidiotus*) on the oak leaf fern (*Phegopteris dryopteris*).

The *Hyalopsora* rusts on ferns in Europe were described as far back as 1801, though they were not proved to be rusts until 1895. In 1916 Klebahn, one of the foremost European rust experts, inoculated balsam and spruce with the *Hyalopsora* rust of the oak fern, without effect on the spruce, and with indeterminate results on the balsam.

As there was an abundant supply of the newly-discovered rust on the balsam in Timagami in June, 1923, inoculations were made, with the help of Mr. G. D. Darker, from the balsam to the oak fern and with complete success. Twenty fronds in all were inoculated under perfectly-controlled conditions, and thirty fronds placed under the same conditions were kept as controls. Every inoculated frond showed lesions indicating infection (249 lesions in all), most of

them bearing rust pustules (283 all told) and not one of the controls developed either lesions or pustules. The appended table shows the experiment in detail. The experiment demonstrates conclusively that the new rust on balsam is the alternate phase of the long-known fern rust *Hyalopsora aspidiotus*, the first species of the *Hyalopsora* rusts, the connections of which have been elucidated.

Inoculated Fronds	Date of Inoculation	First appearance of lesions	Fronds Harvested	No. of lesions	No. of pustules
1.....	June 20, 1923	July 14, 1923	July 22, 1923	24	16
2.....	June 22, 1923	July 18, 1923	"	36	4
3.....	June 22 & 25, 1923	"	"	8	10
4.....	"	"	"	7	10
5.....	"	"	"	20	8
6.....	"	"	"	17	0
7.....	"	"	"	8	1
8.....	"	"	"	2	0
9.....	"	"	"	6	0
10.....	"	"	"	16	3
11.....	"	"	"	4	0
12.....	"	"	"	6	5
13.....	June 21, 1923	July 9, 1923	July 19, 1923	19	66
14.....	June 24, 1923	"	July 22, 1923	12	0
15.....	"	July 22, 1923	July 22, 1923	7	6
16.....	June 21, 1923	July 9, 1923	July 18, 1923	6	7
17.....	June 24, 1923	July 16, 1923	"	12	16
18.....	June 20, 1923	July 9, 1923	July 22, 1923	21	128
19.....	June 22, 1923	July 13, 1923	"	3	3
20.....	June 24, 1923	"	"	15	0
				249	283

Appendix No. 43

Timber areas disposed of from 1st November, 1922, to 31st October, 1923

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Oct. 18.	1922 Nov. 9.	Blake Township.—S.W. half Lot 8, Con. 2.—Dist. of Thunder Bay.	1/2 sq. mile.	D. Collins, Slate River, Ontario.	\$2.50 per M. ft. B.M. for pine; 15c. each for ties; 10c. per cord for fuelwood, all in addition to Crown dues.	Sawlogs.	13557
1922 Oct. 19.	1922 Nov. 9.	Burk Township.—Lots 6 to 12 inclusive, Cons. 2, 3 and 4.—Dist. of Kenora.	10 1/2 sq. miles	H.D. McLaughlin, Grain Exchange Bldg., Winnipeg, Man.	\$8.00 per M. ft. B.M. for pine timber; \$6.00 per M. ft. B.M. for spruce, poplar and basswood; \$5.00 per M. ft. B.M. for other timber; 76c. per cord for spruce pulpwood; 65c. per cord for other pulpwood; 12 1/2c. each for railway ties, all in addition to Crown dues. <i>Cedar Poles</i> :—30 ft. and less in length, 10c.; 31 to 40 ft., 15c.; 41 to 50 ft., 25c.; 51 ft. and over, 50c.; fuelwood, 5c. per cord; cedar posts, 1c. each, all in addition to Crown dues.	Ties.	28970
1922 Oct. 18.	1922 Nov. 9.	Firstbrook Township.—S. half Lot 8, Con. 4.—Dist. of Temiskaming.	1/2 sq. mile.	Norfolk & Rochester Hardware Co., Limited, Haileybury.	Pine, \$2.00 per M. ft. B.M.; railway ties, 10c. each, in addition to Crown dues.	Sawlogs	3144A
1922 Oct. 17.	1922 Nov. 15	North part Douglas Island, being all that part of the Island north of the north boundary of Indian Reserve, 25D.—Dist. of Rainy River.	1 sq. mile.	Border Lumber Co., Limited, Fort Frances.	Red and white pine, \$8.10 per M. ft., B.M.; jack pine, \$6.50 per M. ft. B.M.; poplar, 50c. per M. ft. B.M.; other timber, 50c. per M. ft. B.M.; spruce pulpwood, 25c. per cord, all in addition to Crown dues.	General Logging.	44164
1922 Oct. 21.	1922 Nov. 10.	Hudson Township.—Lots S. half 11, Con. 1.—Dist. of Temiskaming.	1/2 sq. mile.	John McChesney c/o The Manager Imperial Bank, New Liskeard, Ontario.	All classes of timber, \$3.50 per M. ft. B.M., in addition to Crown dues.	Sawlogs.	11634

1922 Oct. 27.	1922 Nov. 17.	Armour Township.—Lot 24, Con. 2.—Dist. of Parry Sound.	1/2 sq. mile.	J. C. Murray, Katrine, Ontario.	Pine timber, \$2.50 per M. ft. B.M., being Crown dues only; spruce, poplar or basswood, 50c. per M. ft. B.M.; other timber, \$1.00 per M. ft. B.M., both in addition to Crown dues; railway ties, 10c. each, being Crown dues only; spruce pulpwood, 80c. per cord, being Crown dues only; other pulpwood, 40c. per cord, being Crown dues only; fuelwood, 25c. per cord, being Crown dues only; cedar posts, 2c. each, being Crown dues only. <i>Cedar Poles</i> :—30 ft. and less in length, 25c.; 31 ft. to 40 ft., 50c.; 41 to 50 ft., 75c.; 51 ft. and over, \$1.00, being Crown dues only in each case.	General Logging.	31914
1922 Oct. 30.	1922 Nov. 20.	Chisholm Township.—Lots 24 and 25, Con. 1.—Dist. of Nipissing.	1 sq. mile.	W. J. Foster, North Bay, Ont.	Spruce, poplar or basswood, \$3.00 per M. ft. B.M.; birch, \$3.00 per M. ft. B.M.; hemlock, \$2.00 per M. ft. B.M.; ash, \$3.00 per M. ft. B.M.; railway ties, 10c. per tie; spruce pulpwood, 75c. per cord, all in addition to Crown dues.	General Logging.	12342
1922 Nov. 1.	1922 Nov. 22.	Stirling Township.—Lot E, half 11, Con. 3.—Dist. of Thunder Bay.	1/2 sq. mile.	Oscar Styff, Port Arthur, Ontario.	Spruce pulpwood, \$2.10 per cord; other pulpwood, \$1.50 per cord; fuelwood, 25c. per cord, all in addition to Crown dues.	Pulpwood.	34146
1922 Nov. 1.	1922 Nov. 22.	McTavish Township.—Lot 7, Con. A; Lot N.W. quarter 7, Con. B; Lot S.W. quarter 6, Con. B.—Dist. of Thunder Bay.	1/2 sq. mile.	E. E. Johnson, (Manager) Pigeon River Lumber Co., Ltd., Port Arthur, Ont.	Spruce pulpwood, \$2.00 per cord; other pulpwood, 80c. per cord; fuelwood, 15c. per cord, all in addition to Crown dues.	Pulpwood	19756
1922 Nov. 13.	1922 Nov. 30.	Frleigh Township.—Lots N. half 15, N. half 16, Con. 7; Lots 15 and 16, Con. 8.—West of Thunder Bay.	1 1/2 sq. miles.	E. E. Johnson, (Manager) Pigeon River Lumber Co., Ltd., Port Arthur, Ont.	Pine, \$10.00 per M. ft. B.M.; spruce, \$10.50 per M. ft. B.M.; other timber, \$11.00 per M. ft. B.M.; railway ties, 10c. each; spruce pulpwood, \$3.00 per cord; other pulpwood, \$2.00 per cord; fuelwood, 25c. per cord, all in addition to Crown dues.	General Logging.	26210
1922 Nov. 8.	1922 Nov. 30.	Ware Township.—Lot S, half 16, Con. 7.—Dist. of Thunder Bay.	1/2 sq. mile.	James Horigan, Kaministiquia, Ontario.	Pine, \$3.00 per M. ft. B.M.; spruce, \$1.00 per M. ft. B.M.; other timber, \$1.00 per M. ft. B.M.; jackpine ties, 4c. each; spruce pulpwood, 10c. per cord; other pulpwood, 10c. per cord; fuelwood, 10c. per cord, all in addition to Crown dues.	Ties and Pulpwood.	19757

Appendix No. 43—Continued

Timber areas disposed of from 1st November, 1922, to 31st October, 1923

Date offered	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Nov. 14.	1922 Dec. 15.	Pettypiece Township.—Ex- cepting Patented Veteran Claims, Veteran Locations, Pa- tented Mining Claims, and Patented Agricultural Loca- tions.—Dist. of Kenora.	25 sq. miles.	Saunders & McDonald, Winnipeg, Man.	Spruce, \$2.05 per M. ft. B.M.; poplar, 50c. per M. ft. B.M.; railway ties, 5c. each, all in addition to Crown dues; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 25c. per cord, being Crown dues only.	General Logging.	1956D
1922 Nov. 24.	1922 Dec. 26.	Area adjacent to Grand Trunk Pacific Block 1, east of Horne on the Canadian Pacific Railway.—Dist. of Thunder Bay.	6 sq. miles.	J. O. Stewart, Port Arthur, Ont.	Pine, \$5.50 per M. ft. B.M.; spruce, \$6.00 per M. ft. B.M.; other timber, \$5.00 per M. ft. B.M.; spruce pulpwood, \$2.00 per cord; balsam pulpwood, \$2.00 per cord; railway ties, 12c. per tie; fuelwood, 35c. per cord, all in addition to Crown dues.	Ties and Pulpwood.	7410
1922 Nov. 27.	1922 Dec. 18.	Point situated on the north side of Long Lake, being direct- ly north of Timber Berth No. 51.—Dist. of Rainy River.	4 sq. miles.	Shevlin, Clarke Co., Limited, Fort Frances, Ont.	Red and white pine, \$8.26 per M. ft. B.M.; spruce, \$4.10 per M. ft. B.M.; poplar and basswood, \$1.00 per M. ft. B.M.; jackpine, \$2.00 per M. ft. B.M.; jackpine ties, 4c. each; spruce pulpwood, 40c. per cord; other pulp- wood, 10c. per cord; fuelwood, 10c. per cord, all in addition to Crown dues.	Sawlogs.	45675
1922 Nov. 29.	1922 Dec. 22.	Lyon Township.—Lots 5, 6, 7 and 8, Con. 5; Lots 5, 6, E. half 7, and 8, Con. 6; Lot E. half 3, Con. 7.—Dist. of Thun- der Bay.	4 sq. miles.	Newaygo Com- pany, Limited, Port Arthur, Ont.	Pine, \$12.00 per M. ft. B.M.; railway ties, 20c. each; fuelwood, 25c. per cord, all in addi- tion to Crown dues.	Pulpwood	20272
1922 Nov. 25.	1922 Dec. 23.	Area immediately north of Indian Reserve, 25D, lying north of Douglas Island.— Dist. of Rainy River.	3 sq. miles.	Border Lumber Co., Limited, Fort Frances, Ont.	Red and white pine, \$9.25 per M. ft. B.M.; jackpine, \$6.00 per M. ft. B.M.; spruce, \$5.00 per M. ft. B.M.; spruce pulpwood, \$1.25 per cord; railway ties, 6c. each, all in addition to Crown dues.	Sawlogs.	44164

1922 Dec. 29.	1923 Jan. 18.	Township 7 and part of Township 6.—Lying north and east of the Canadian Pacific Railway, in the vicinity of James Station, on C.N.R.—Dist. of Thunder Bay.	36 sq. miles.	Charles Mellor, Port Arthur, Ont.	Pine, \$7.00 per M. ft. B.M.; spruce, poplar and basswood, \$4.00 per M. ft. B.M.; o her timber, \$3.00 per M. ft. B.M.; railway ties, 12c. each; spruce pulpwood, \$1.87 per cord; other pulpwood, \$1.07 per cord; fuelwood, 5c. per cord, all in addition to Crown dues.	Pulpwood.	46024
1923 Jan. 8.	1923 Jan. 30.	Area south and east of Timber Berth A.F.W. 7, extending 2½ miles east of the southerly part of said Berth and 4½ miles south of the easterly part of said Berth.—Dist. of Kenora	10 sq. miles.	Milligan & Morrow, 225 Curry Bldg., Winnipeg, Man.	Red and white pine, \$8.10 per M. ft. B.M.; jackpine, \$5.85 per M. ft. B.M.; spruce, poplar and basswood, \$4.75 per M. ft. B.M.; other timber, \$3.25 per M. ft. B.M.; railway ties, 4c. each; spruce pulpwood, 40c. per cord; other pulpwood, 25c. per cord, all in addition to Crown dues.	Ties.	8716
1922 Nov. 2.	1923 Jan. 19.	Hawkins Township.—Dist of Algoma.	81 sq. miles.	The Algoma Central & Hudson Bay Railway and Lake Superior Paper Co., Limited, jointly, c-o Messrs. Gibson & Gibson, Barristers, Bank all inclusive of Crown dues. Cedar Poles.—of Hamilton Bldg., Toronto, Ont.	Pine timber, 50c. per M. ft. B.M.; including jackpine; spruce, poplar and basswood, \$1.00 per M. ft. B.M.; other timber, 75c. per M. ft. B.M., all in addition to Crown dues; railway ties, 10c. per tie; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 25c. per cord; cedar posts, 2c. each, all inclusive of Crown dues. Cedar Poles.—30 ft. and less in length, 25c; 31 to 40 ft. 50c; 41 to 50 ft., 75c.; 51 ft. and over, \$1.00, being Crown dues only.	Pulpwood and Ties.	1421
1923 Jan. 11.	1923 Jan. 26.	Pattullo Township.—N. half and S.E. quarter of N.E. quarter, Sec. 22.—Dist. of Rainy River.	½ sq. mile.	A. F. Cameron, Stratton P.O., Ontario.	Pine, \$6.00 per M. ft. B.M.; spruce, etc., 50c. per M. ft. B.M.; other timber, \$1.50 per M. ft. B.M.; railway ties, 5c. per tie; spruce pulpwood, \$1.00 per cord; other pulpwood, 25c. per cord; fuelwood, 10c. per cord, all in addition to Crown dues.	General Logging.	13941
1922 Dec. 29.	1923 Jan. 31.	Westbrook Township.—S. half (and that portion of land lying between the south boundary of the said township and the north boundary line of Timber Berth H. G. Onaping).—Dist. of Sudbury.	25½ sq. miles	Hope Lumber Co. Limited, Thessalon, Ont.	Red and white pine, \$13.27 per M. ft. B.M.; railway ties, 25c. per tie, in addition to Crown dues.	Sawlogs.	19759

Appendix No. 43—Continued

Timber areas disposed of from 1st November, 1922, to 31st October, 1923.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1923 Jan. 12.	1923 Feb. 2.	Chesley Township Addition- al.—Lots 1, 2, 3, 4, 5 and 6, Con. 1.—Dist. of Algoma.	3 sq. miles.	Hope Lumber Co. Limited, Thessalon, Ont.	Pine, \$10.26 per M. ft. B.M.; maple timber, 50c. per M. ft. B.M.; spruce, poplar and bass- wood, \$3.00 per M. ft. B.M.; other timber, \$2.50 per M. ft. B.M.; railway ties, 25c. per tie; spruce pulpwood, 80c. per cord; other pulpwood, 50c. per cord; soft cordwood, 10c. per cord; hard cordwood, 25c. per cord; cedar posts, 2c. per post, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, 25c.; 31 ft. to 40 ft., 50c.; 41 ft. to 50 ft., \$1.00; 51 ft. and over, \$1.50, all in addition to Crown dues.	Sawlogs.	105.A.
1923 Feb. 6.	1923 Feb. 16.	Area between mileage 115½ and 116½ on the Lake Superior Division of the Canadian N - tional Railway in the vicinity of Petry Station.—Dist. of Thunder Bay.	2 sq. miles.	J. E. Cook, Fort William, Ontario.	Spruce pulpwood, \$1.35 per cord; other pulpwood, \$1.00 per cord, in addition to Crown dues.	Pulpwood.	9391.A.
192 Jan. 26.	1923 Feb. 16.	Cane Township.—Lot N, half 7, Con. 1.—Dist. of Temis- kaming.	½ sq. mile.	Donald Duff, Village of Cane, Ontario.	Pine, \$1.75 per M. ft. B.M.; spruce and poplar, \$1.00 per M. ft. B.M.; other timber, \$1.00 per M. ft. B.M.; railway ties, 20c. per tie; spruce pulpwood, 10c. per cord; other pulpwood, 10c. per cord; fuelwood, 10c. per cord, all in addition to Crown dues.	Sawlogs.	18645
1923 Jan. 23.	1923 Feb. 13.	Sterling Township.—Lot W. half 11, Con. 6.—Dist. of Thunder Bay.	½ sq. mile.	Russell Timber Co., Limited, Port Arthur, Ont.	Spruce, \$10.03 per M. ft. B.M.; spruce pulpwood, \$2.71½ per cord; fuelwood, 51½c. per cord, all in addition to Crown dues.	Pulpwood.	29845
1923 Feb. 6.	1923 Feb. 27.	Area situate between Porter Inlet and the north-east arm of Red Gut Bay, adjoining the Rainy Lake Pulp Limit. — Dist. of Rainy River.	0.15 sq. miles.	Border Lumber Co., Limited, Fort Frances, Ont.	Pine, \$8.75 per M. ft. B.M.; railway ties, 8c. per tie, in addition to Crown dues.	Sawlogs.	549

1923 Jan. 12.	1923 Feb. 2.	Bedford Island, in the North Channel of Lake Huron.—Dist. of Manitoulin.	3½ sq. miles.	W. S. L. Wright, Gore Bay, Ont.	Red and white pine, \$10.50 per M. ft. B.M.; jackpine, \$15.00 per M. ft. B.M.; spruce, \$8.50 per M. ft. B.M.; basswood, \$15.00 per M. ft. B.M.; poplar, \$4.00 per M. ft. B.M.; red oak, \$12.50 per M. ft. B.M.; other timber, \$6.00 per M. ft. B.M.; cedar ties, 5c. per tie; spruce pulpwood, \$1.00 per cord; other pulpwood, 65c. per cord; fuelwood, 50c. per cord; cedar posts, 1c. each. <i>Cedar Poles</i> .—30 ft. and less in length, 75c.; 31 to 40 ft., \$1.50; 41 to 50 ft., \$2.50; 51 ft. and over, \$4.50, all in addition to Crown dues.	General Logging.	10224
1923 May 2.	1923 June 1.	Temagami Forest Reserve, Dist. of Temiskaming.	.....	Wm. Milne & Sons North Bay, Ont.	A lump sum of \$5,250.00 for blown-down timber, estimated at 217,425 ft. B.M.	Sawlogs.	44867
1923 May 2.	1923 June 11.	Berth I. E., Mississauga Forest Reserve.—Dist. of Algoma.	36 sq. miles.	J. J. McFadden, Limited, Spragge, Ont.	Red and white pine, \$6.00 per M. ft. B.M.; jackpine, \$2.00 per M. ft. B.M.; spruce, poplar and basswood, \$2.00 per M. ft. B.M.; other timber, \$2.00 per M. ft. B.M.; railway ties, 10c. per tie; spruce pulpwood, 75c. per cord; other pulpwood, 50c. per cord; cedar posts, 5c. each, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, 25c.; 31 ft. to 40 ft., 50c.; 41 ft. to 50 ft., 75c.; 51 ft. and over, \$1.00, all in addition to Crown dues.	Sawlogs.	47135
1923 May 10.	1923 June 15.	Barr Township.—(Part) being all the portion of the township lying south and west of the Montreal River.—Temagami Forest Reserve.—Dist. of Temiskaming.	11½ sq. miles	Grant & Dunn, Latchford, Ont.	Red and white pine, \$13.03 per M. ft. B.M., in addition to Crown dues.	Sawlogs.	21051
1923 May 10	1923 June 15.	Kittson Township.—(Part) being the north-east portion.—Temagami Forest Reserve.—Dist. of Temiskaming.	4½ sq. miles	Grant & Dunn, Latchford, Ont.	Red and white pine, \$13.03 per M. ft. B.M.; jackpine, \$10.25 per M. ft. B.M.; spruce, \$10.25 per M. ft. B.M.; poplar and basswood, \$6.00 per M. ft. B.M.; other timber, \$5.75 per M. ft. B.M.; railway ties, 15c. per tie; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; cedar posts, 3c. each, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, 25c.; 31 ft. to 40 ft., 30c.; 41 ft. to 50 ft., 50c.; 51 ft. and over, 75c., all in addition to Crown dues.	Sawlogs.	21051

Appendix No. 43—Continued

Timber areas disposed of from 1st November, 1922, to 31st October, 1923

Date offered	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1923 May 17.	1923 June 18.	Township 32.—South half.— Dist. of Sudbury.	18 sq. miles.	Austin & Nicholson, Limited, Chapleau, Ont.	Red and white pine, \$4.75 per M. ft. B.M.; jackpine, \$1.25 per M. ft. B.M.; railway ties, 9c. each, all in addition to Crown dues.	Ties.	332 (V.2)
1923 May 17.	1923 June 18.	Hill Township. — Dist. of Sudbury.	18 sq. miles	Austin & Nicholson, Limited, Chapleau, Ont.	Red and white pine, \$4.75 per M. ft. B.M.; jackpine, \$1.25 per M. ft. B.M.; railway ties, 9c. each, all in addition to Crown dues.	Ties.	332 (V.2)
1923 June 9.	1923 June 25.	Waters of Good Lake at Richan and Old Mill site of the Rock Lake Lumber Company.	.....	Paradis & F. Jarvinen, Quibell, Ont.	Jackpine logs, \$2.50 per M. ft. B.M.; spruce logs, \$2.00 per M. ft. B.M.; jackpine boom timber, \$2.50 per M. ft. B.M.; spruce boom timber, \$2.00 per M. ft. B.M.	Sawlogs.	8716
1923 April 16.	1923 June 22.	The Trout-Chapleau Water- shed Pulp and Timber Limit.— Dist. of Sudbury and Algoma.	1,049 sq. mls.	Continental Wood Products Co., Ltd., Elsas, Ont.	White pine, \$6.26 per M. ft. B.M.; red pine, \$6.10 per M. ft. B.M.; jackpine, \$2.65 per M. ft. B.M.; spruce, \$5.17 per M. ft. B.M.; spruce pulpwood, 50c. per cord; other pulpwood, 30c. per cord; fuelwood, 5c. per cord; railway ties, 6c. per tie; cedar posts, 3c. each, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, 5c.; 31 ft. to 40 ft., 10c.; 41 ft. to 50 ft., 15c.; 51 ft. and over, 20c., all in addition to Crown dues.	Kraft Pulp	46370
1923 May 5.	1923 June 2.	Blocks 5-A and 6-A on Little Turtle River. — Dist. of Rainy River.	15½ sq. miles	Fort Frances Pulp and Paper Co., Limited, Fort Frances, Ont.	Pine, \$2.50 per M. ft. B.M.; spruce, poplar and basswood, \$2.00 per M. ft. B.M.; other timber, \$1.50 per M. ft. B.M.; railway ties, 10c. each; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 25c. per cord, being Crown dues only in each case.	Pulpwood.	18648
1923 July 26.	1923 Aug. 15.	Harvey Township.—County of Peterborough.—East half of Lot 31, Con. 18.	½ sq. mile.	The John Carew Lumber Co., Ltd.	Pine, \$10.00 per M. ft. B.M.; maple, \$4.00 per M. ft. B.M.; birch, \$4.00 per M. ft. B.M.; spruce, poplar and basswood, \$5.00 per M. ft. B.M.; other timber, \$5.50 per M. ft. B.M.; hardwood, 30c. per cord; softwood, 25c. per cord, all in addition to Crown dues.	Sawlogs.	20417

1923 Aug. 18.	1923 Sept. 10.	Area in the vicinity of Onion Lake, north of the Township of McGregor.—Dist. of Thunder Bay.	13½ sq. miles	E. E. Johnson, Pigeon River Lumber Co., Ltd., Port Arthur, Ont.	Pine, \$7.00 per M. ft. B.M.; spruce, \$5.00 per M. ft. B.M.; other timber, \$2.50 per M. ft. B.M.; spruce pulpwood, 85c. per cord; other pulpwood, 40c. per cord; railway ties, 6c. per tie; fuelwood, 10c. per cord, all in addition to Crown dues.	Pulpwood.	16064
1923 Aug. 18.	1923 Sept. 10.	Berth G.B. 1.—Situate between West Clearwater Lake and Trout Lake.—Dist. of Rainy River.	9 sq. miles.	Shevlin Clarke Co., Limited, Fort Frances, Ont.	Red and white pine, 55c. per M. ft. B.M., in addition to Crown dues; jackpine, \$2.50 per M. ft. B.M.; spruce, \$2.00 per M. ft. B.M.; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 25c. per cord, being Crown dues only in each case.	Sawlogs.	49990
1923 Aug. 20.	1923 Sept. 15.	Part of Berth 50 and G.B. 2.—Quetico Forest Reserve.—Dist. of Rainy River.	19½ sq. miles	Shevlin Clarke Co., Limited, Fort Frances, Ont.	<i>Part Berth 50.</i> —Green Timber.—Red and white pine, \$6.10 per M. ft. B.M., in addition to Crown dues; jackpine, \$2.50 per M. ft. B.M., being Crown dues only; spruce logs, \$4.10 per M. ft. B.M., in addition to Crown dues; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 25c. per cord, being Crown dues only. <i>Part Berth 50.</i> —Burned Timber.—Red and white pine, \$1.00 per M. ft. B.M., in addition to Crown dues; jackpine, \$2.50 per M. ft. B.M.; spruce logs, \$2.00 per M. ft. B.M.; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord, being Crown dues only. <i>G.B. 2.</i> —Green and Burned Timber.—Red and white pine, \$2.50 per M. ft. B.M.; jackpine, \$2.50 per M. ft. B.M.; spruce logs, \$2.00 per M. ft. B.M.; spruce pulpwood, 80c. per cord; other cordwood, 40c. per cord, being Crown dues only.	Sawlogs.	49989
1923 Sept. 6.	1923 Oct. 1.	Southern portion of Timber Berth "K," lying north of what is known as Timber Berth G.B. 1, in the vicinity of Clearwater Lake, south of Ignace.—Dist. of Kenora.	29 sq. miles	Shevlin Clarke Co., Limited, Fort Frances, Ont.	Red and white pine, \$2.50 per M. ft. B.M.; jackpine, \$2.50 per M. ft. B.M.; spruce, \$2.00 per M. ft. B.M.; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; railway ties, 10c. each; wood, 25c. per cord; cedar posts, 2c. each, being Crown dues only in each case. <i>Cedar Poles</i> —30 ft. and less in length, 25c.; 31 ft. to 40 ft., 50c.; 41 ft. to 50 ft., 75c.; 51 ft. and over, \$1.00, being Crown dues only in each case.	Sawlogs.	50155

Appendix No. 43—Continued

Timber areas disposed of from 1st November, 1922, to 31st October, 1923

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1923 Sept. 14.	1923 Oct. 8.	Irish Township.—Dist. of Algoma.	81 sq. miles.	Muir & Kirkpatrick, Bank of Hamilton Bldg., Toronto, Ont.	Red and white pine, \$3.50 per M. ft. B.M.; jackpine, \$1.00 per M. ft. B.M.; spruce, 50c. per M. ft. B.M., all in addition to Crown dues; poplar, \$2.00 per M. ft. B.M.; other woods, \$1.50, being Crown dues only; jackpine ties, 10c. each; spruce pulpwood, 20c. per cord; other pulpwood, 20c. per cord, all in addition to Crown dues.	General Logging	37700
1923 Aug. 24.	1923 Sept. 15.	North portion of the Township of Cassels and an area north thereof, and a small portion of the Township of Strathroy in the Tenagami Forest Reserve.—Dist. of Temiskaming.	25½ sq. miles.	A. B. Gordon & Co., Limited, North Bay, Ont.	Red and white pine, \$14.00 per M. ft. B.M.; spruce, \$7.00 per M. ft. B.M.; basswood, \$8.00 per M. ft. B.M.; poplar, \$3.00 per M. ft. B.M.; other timber, \$2.00 per M. ft. B.M.; railway ties, 30c. each; spruce pulpwood, \$2.00 per cord; other pulpwood, \$1.00 per cord; cedar posts, 5c. each, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, \$1.00; 31 ft. to 40 ft., \$1.25; 41 ft. to 50 ft., \$2.00; 51 ft. and over, \$4.00, all in addition to Crown dues.	Sawlogs.	50154
1923 Sept. 28.	1923 Oct. 19.	McCann Township.—Lots 1 and 2, Con. 1; Lots south half 1 and south half 2, Con. 2.—Dist. of Temiskaming.	2 sq. miles.	R. S. Potter, Matheson, Ont.	Jackpine, \$1.00 per M. ft. B.M.; spruce, poplar and basswood, \$2.00 per M. ft. B.M.; other timber, \$1.50 per M. ft. B.M.; railway ties, 5c. each; spruce pulpwood, 80c. per cord; other pulpwood, 60c. per cord; fuelwood, 25c. per cord, all in addition to Crown dues.	Sawlogs.	44718
1923 Oct. 11.	1923 Oct. 29.	Bennett Township.—Lots 5, 6, 7, 8 and 9, Con. 2, also an area containing 2 square miles situated north of Cedar Lake and Willow Creek, and lying immediately west of the west boundary of Bennett Township.—Dist. of Rainy River.	4½ sq. miles.	W. J. Thompson, Emo, Ontario.	White and Norway pine, \$5.50 per M. ft. B.M.; jackpine, \$3.50 per M. ft. B.M.; spruce, \$2.00 per M. ft. B.M., all in addition to Crown dues; poplar, \$2.00 per M. ft. B.M.; being Crown dues only; pulpwood, 40c. per cord, in addition to Crown dues; fuelwood, 25c. per cord, being Crown dues only.	Sawlogs.	11639

1923 Oct. 4.	1923 Oct. 29.	Area in the vicinity of Valora Station, on the Canadian National Railway, lying between Mile Posts 149 and 153, north and east of the track and designated as "Limit F."—Dist. of Kenora.	12 sq. miles.	J. B. Hardy, Fort William, Ont	Red and white pine, \$4.10 per M. ft. B.M.; poplar and basswood, \$3.25 per M. ft. B.M.; other timber, \$1.15 per M. ft. B.M.; railway ties, 15 1/2c. each; spruce pulpwood, \$1.40 per cord; other wood suitable for pulp, 80c. per cord; fuelwood, 50c. per cord, in addition to Crown dues.	Pulpwood and Ties.	24745
1923 Oct. 9.	1923 Oct. 30.	Boulter Township.—Lots 16 to 22 inclusive, Cons. 12, 13, and 14.—Dist. of Nipissing.	3 1/2 sq. miles.	Joseph Baechler, Wasing, Ontario.	Pine, \$12.50 per M. ft. B.M.; spruce, poplar and basswood, \$2.50 per M. ft. B.M.; hemlock, \$2.00 per M. ft. B.M.; birch, etc., \$3.50 per M. ft. B.M.; railway ties, 40c. per tie; spruce pulpwood, 80c. per cord; other pulpwood, 60c. per cord; fuelwood (soft), 15c. per cord; fuelwood (hard), 25c. per cord, all in addition to Crown dues. <i>Cedar Poles</i> .—30 ft. and less in length, 25c.; 31 ft. to 40 ft., 50c.; 41 ft. to 50 ft., 75c.; 51 ft. and over, \$1.00, all in addition to Crown dues.	(General Logging.	177

Appendix No. 43—Continued

Timber Areas disposed of from 1st May, 1923, to 31st October, 1923.

When Granted.	Locality.	Area.	To Whom Granted.	Price Paid.	Proposition.	File No.
1923 May 1.	Areas in the vicinity of Snake Bay and Red Cliff Bay, Lake of the Woods.—Dist. of Kenora.	13 sq. miles.	Lake of the Woods Milling Co., Limited Keewatin, Ont.	Poplar, 80c. per cord of 100 cubic feet.	Stave Bolts.	33882
1923 June 1.	Part of Canisbay Township.—Algonquin Park.	2 sq. miles.	George Jamieson, Kinburn, Ontario.	Pine, cedar, etc., \$1.50 per M. ft. B.M.; pulpwood, 50c. per cord; ties, 10c. each; cordwood, 25c. per cord, all inclusive of dues	General Logging.	30351
By Order-in-Council dated 13th Sept., 1923. Approving Agreement dated 15th May, 1923.	Districts of Algoma and Sudbury.	3,066 sq. mls.	Spanish River Pulp and Paper Mills, Limited, Sault Ste. Marie, Ontario.	Spruce pulpwood, 50c. per cord; other classes of pulpwood, 30c. per cord, both in addition to Crown dues.	Pulpwood.	2159
Exchange of Timber on Limit in the Township of Carling, by Order-in-Council dated 4th Oct., 1923.	On Ramsay, Bisco and Cat Bays, near Biscotasing.—Dist. of Sudbury.	19 sq. miles.	Standard Bank of Canada, for Pratt & Shanacy, Midland, Ont.	Any pine timber taken out in excess of 325,000 ft. B.M. to be paid for at \$6.50 per M. ft. B.M.	General Logging.	1128

Appendix No. 44.

THIS AGREEMENT made in triplicate this fifteenth day of May, 1923.

BETWEEN

HIS MAJESTY THE KING, represented by the Honourable the Minister of Lands and Forests for the Province of Ontario, hereinafter called "The Crown,"

OF THE FIRST PART

—and—

THE SPANISH RIVER PULP AND PAPER MILLS, LIMITED, a Company organized and existing under the laws of the Province of Ontario, hereinafter called "The Company,"

OF THE SECOND PART.

WHEREAS the Company was organized by Letters Patent of the Province of Ontario, with an authorized capital of Twenty Million Dollars (\$20,000,000.00) divided into Two Hundred Thousand (200,000) shares of the par value of One Hundred Dollars (\$100.00) each, of which One Hundred Thousand (100,000) are Preference Shares and One Hundred Thousand (100,000) are Common Shares, and

WHEREAS the Company is the holder and owner of all of the capital stock of the Lake Superior Paper Company, Limited, a company duly incorporated under the laws of the Dominion of Canada, and operating a pulp and paper mill at the City of Sault Ste. Marie, in the District of Algoma, in the Province of Ontario, and

WHEREAS the Company has operated continuously for a number of years, pulp and paper mills at the town of Espanola in the District of Sudbury, in the Province of Ontario, and at the Town of Sturgeon Falls in the District of Nipissing, and

WHEREAS at the three said mills of the Company the Company has a daily output of 700 tons of newsprint, 700 tons of groundwood, 290 tons of sulphite pulp, and 50 tons of board or wrapping paper, and

WHEREAS the Company has expended in the construction and operation of its three said mills large sums of money, and has represented to the Crown that it has an insufficient supply of pulpwood to support its said operations, and

WHEREAS it is in the public interest that the said mills shall be assured of an adequate supply of pulpwood in order to guarantee the continuous operation of its mills, thus insuring the employment of a large number of workmen throughout each year, and

WHEREAS in order to assure the Company of an adequate supply of pulpwood for its mills the Crown, represented by a former Minister of Lands and Forests, set aside in September, 1919, an area of ungranted lands of the Crown and indicated his intention to grant to the Company the right to cut pulpwood over an area the extent and location of which was to be determined later, and

WHEREAS in consideration of the setting aside of such area the Company has expended large sums of monies in addition to and extensions of its plants, and

WHEREAS a Government cruise has been made and an estimate submitted and one-half of the cost of such work is chargeable to and payable by the Company, and

WHEREAS this Agreement has been entered into in fulfilment of the intention of such former Minister:

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants, promises and agreements hereinafter contained, it is hereby agreed as follows:—

1. In consideration of the premises of the contracts and agreements entered into on the part of the Company, the Crown, for the rates hereinafter set forth and provided and subject to the terms, conditions and regulations as to locality and manner of cutting, measuring, driving and removing same as may from time to time be imposed by the Minister, and subject also as hereinafter set forth and contained, will and doth grant to the Company for a period of twenty-one years from the date hereof

(a) The right to cut and remove all the timber suitable for pulpwood except Red and White Pine and also except all Jack Pine twelve inches and over in diameter measured inside the bark eighteen inches from the ground, to supply the said mills or extensions thereof or additions thereto in or upon the area described as follows:—

The Townships of Walls, Marjorie, Legge, Hook, Coderre, Stefansson, Lerwick and Kirkwall, in the *District of Algoma, containing 647 square miles more or less;*

and

the east one-half of the Township of Leeson, the Townships of Baltic, Barclay, Calais, Lloyd, Oates, Brackin, Missinabi, Admiral, Busby, East one-half of Township of Abbey, Townships of Clifton, Brutus, Muskego, Chaplain, Manning, West one-half of Township of Carty, Township of Keith, North one-half of Township of Ramsden, Townships of Mageau, Murdock, West one-half of Township of Evans, the unsurveyed area north of the Townships of Newton and Dale and south of the Townships of Ivanhoe and Keith, Township of Regan, East one-half of Township of Marshall, Township of Sandy, South one-half of Township No. 33, unsurveyed area east of the Township of McOwen, Townships of Chapleau, Marion, unsurveyed area east of Genoa, North one-half of Township of Tooms, North one-half of Township of Greenlaw, North one-half of Township of Cunningham, Townships of Garnet, Benton, Mallard, Eric, Somme, Osway, Potier, Neville, and Chester, in the *District of Sudbury, containing 1,598 square miles more or less.*

(b) The right to cut and remove all Spruce and Balsam to supply the said mills or extensions thereof or additions thereto in or upon that area, described as follows:—

The Townships of Bonar, Lipsett, Copperfield, Sadler and Racine, in the District of Sudbury.

(c) The right to cut and remove all the timber suitable for pulpwood except the Red and White Pine and Jack Pine, to supply said mills or extensions thereof or additions thereto in or upon the area, described as follows:—

East one-half of Township of Addison, Township of Hill, West one-half of Township of Marshall, North one-half of Township No. 33, South one-half of Township No. 32, in the District of Sudbury, containing 108 square miles, more or less, and the Townships of Amik, Abigo, Hayward, Conking, Nobotik and Makawa, the unsurveyed area east

of the Township of Abigo, less Indian Reserve, in the District of Algoma, containing 405 square miles, more or less, the total area of the herein mentioned lands being 3,066 square miles, more or less.

2. The Company, for the right to cut the pulpwood on the said area, as above described, shall pay such rates as shall be fixed from time to time by the Lieutenant-Governor in Council, but in no case shall the Crown dues be fixed at higher figures than the price at which the general public shall be permitted to cut on other portions of the Crown domain, or than others similarly situated shall be permitted to cut.

3. It is distinctly understood that the Company obtains the right to cut the timber only, and has no right to the soil or use thereof, except as may be necessary for cutting and removing the wood and timber as aforesaid, subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Minister.

4. The wood and timber shall be cut upon such portions of said territory, and in such manner as the Minister may from time to time direct, and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payments of such annual charge for fire protection, as may from time to time be fixed by the Lieutenant-Governor in Council.

5. All pulpwood cut on the said territory shall be used for the supply of, and shall be manufactured at, the said mills or extensions thereof or additions thereto.

6. Pulpwood taken out in 4-foot or 8-foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

7. All slash made about camps, dumps, along tote roads, railroads, or at any other points which might constitute a serious fire menace, shall be disposed of as directed by an officer of the Department.

8. In order to reduce possible difficulties arising from dual operations on the within mentioned area, no Jack Pine 12 inches and over in diameter measured inside the bark 18 inches from the ground will be sold by the Minister until the Company has been notified in writing of the proposed sale.

9. The Crown does not guarantee any particular quantity of wood or timber nor undertake to do more than grant the right to cut such quantities of wood or timber as may be on said area, subject to the reservations and conditions hereinbefore provided.

10. Proper sworn returns of wood and timber cut each season shall be made by the Company to the Crown, in conformity with the Crown Timber Act and regulations thereunder, and payment of dues upon all the wood and timber cut by the Company, shall be made by the Company to the Crown forthwith upon the rendering from time to time by the Crown to the Company of an account hereof; and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of the enforcement of such payments and of any interest charges thereon as are now or hereafter may be provided in the case of the dues on timber cut under timber license.

11. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest; and if upon inspection it appears, and the Minister so decides, that the said timber operations are carried on in such a way that any merchantable or valuable timber that should be removed is being left or destroyed, the Minister shall

have the right to estimate the said timber so remaining uncut or being destroyed, and charge the same to the Company at, and the Company shall pay therefor, the same rate of dues as if the same had been actually removed by the said Company.

12. The cutting and removing of timber on said territory or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown nor until such operation shall have been declared satisfactory by the Minister.

13. The Company shall not, at any time or in any place, deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals, or matter of any kind, which shall be injurious to fish life, or have the effect of destroying, harming or driving away the fish in such river, stream or water.

14. All water powers and privileges on said territory, and the right of the Crown to raise, hold, lower and maintain the waters on the rivers, streams and lake in said territory at such height and in such conditions as may be found necessary and expedient for the development of such water powers, are reserved to the Crown.

15. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said territory on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere, and this agreement is not to impede or retard settlement, or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate, or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

16. Nothing herein contained or to be done hereunder or by virtue hereof, shall entitle the Company to a monopoly in the use of any rivers, streams, or lakes or tributaries thereof, in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the Company in any way interfering with the driving of logs or timber down the said rivers, streams or lakes or tributaries thereof, the Minister, as well as such other lawful authority as may be constituted therefor, shall have full power to determine from time to time the provisions necessary to overcome such interference, and thereupon the said Company, as and when directed, will make provisions accordingly.

17. It is distinctly understood and agreed that the Company shall not cut or remove any timber from any territory or area covered by this agreement while under license or permit from the Crown, except upon the written consent of the Minister.

18. In the event of failure on the part of the Company to comply with any of the terms, requirements, provisions or conditions contained herein, the Minister may revoke the right, license or permit to cut the said forest products, and upon the said revocation all rights of the Company under the agreement shall be and become *ipso facto* null and void, provided that thirty days' notice in writing of intention to revoke the said right, license or permit shall be given by registered letter addressed to the Company at Sault Ste. Marie, Ont.

19. The Minister shall have the power to waive the right of revocation caused by any failure on the part of the Company herein provided for.

20. Upon all dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter, the Company, without prejudice to the power of the Crown to enforce

the payment of such dues at any time the Minister may think proper, shall pay to the Crown interest at the rate of six per cent. (6%) per annum from said thirtieth day of September, and upon all of such dues remaining unpaid on the thirty-first day of October then next ensuing, the Company shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

21. The word "Minister" shall mean Minister of Lands and Forests of the Province of Ontario.

22. This agreement shall be binding upon and enure to the benefit of the Company, its successors and assigns; provided, however, that this agreement and the terms created shall not be assigned or transferred without the written consent of the Minister, endorsed on said assignment or transfer.

23. The said parties for themselves, their successors, heirs and assigns, respectively, do hereby covenant and agree to the full performance on their part, respectively, of everything herein stipulated to be done.

IN WITNESS WHEREOF said Minister of Lands and Forests for the Province of Ontario, and the Company, have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED
in the Presence of:

(Sgd.) W. C. CAIN,
As to signature of Minister.

(Sgd.) M. LYNCH,
As to signature of Company.

(SEAL)

(Sgd.) BENIAH BOWMAN,
Minister of Lands and Forests.

(Sgd.) T. GIBSON,
President,
Spanish River Pulp & Paper Mills.

(Sgd.) J. G. GIBSON,
Secretary,
Spanish River Pulp & Paper Mills.

(SEAL)

Appendix No. 45.

COPY OF AGREEMENT.

ABITIBI POWER AND PAPER COMPANY, LIMITED.

ADDITIONAL AREA.

THIS AGREEMENT made in triplicate this Twelfth day of July, 1923.
BETWEEN:—

HIS MAJESTY THE KING, represented by the
Honourable the Minister of Lands and Forests for the
Province of Ontario, hereinafter called "The Crown,"
OF THE FIRST PART,

—And—

THE ABITIBI POWER AND PAPER COMPANY,
LIMITED, a Company organized and existing under
the laws of the Province of Ontario, hereinafter called
"The Company,"

OF THE SECOND PART.

WHEREAS the Company was organized by Letters Patent of the Dominion of Canada, with an authorized capital of two hundred and fifty thousand shares of no par value, of which ten thousand are Preference Shares and two hundred and forty thousand are Common Shares, and

WHEREAS the Company is the owner and operator of a pulp and paper mill at the Town of Iroquois Falls in the Province of Ontario, and

WHEREAS the Company has operated continuously for a number of years a pulp and paper mill at the said town of Iroquois Falls with a daily output of 400 tons of newsprint paper, and

WHEREAS it is in the public interest that the said mill shall be assured of an adequate supply of pulpwood in order to guarantee its continuous operation and insure the employment of a large number of workmen, and

WHEREAS in order to assure the Company of an adequate supply of pulpwood for its mills the Crown, represented by a former Minister of Lands and Forests, set aside in April, 1919, an area of ungranted lands of the Crown and indicated his intention to grant to the Company the right to cut pulpwood over an area the extent and location of which was to be determined later, and

WHEREAS in consideration of the setting aside of such area the Company has expended large sums of monies in addition to and extensions of its plants;

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants, promises and agreements hereinafter contained, it is hereby agreed as follows:—

1. In consideration of the premises of the contracts and agreements entered into on the part of the Company, the Crown, for the rates hereinafter set forth and provided and subject to the terms, conditions and regulations as to locality and manner of cutting, measuring, driving and removing same as may from time to time be imposed by the Minister and subject also as hereinafter set forth and contained, will and doth grant to the Company for a period of twenty-one years the right to cut and remove all the timber suitable for pulpwood, except Red and White Pine, and Jack Pine twelve inches and upwards eighteen inches from the ground, to supply the said mill or extension thereof or additions thereto in or upon the area described as follows:—

In the District of Cochrane in the Province of Ontario, commencing at the southeasterly angle of the Township of Kennedy; thence easterly along the northerly boundaries of the Townships of Stimson, Sweatman, Findlay, Henley, Pliny, Steele and Scappa, and the production thereof easterly to a point on the Interprovincial Boundary line between the Provinces of Ontario and Quebec; thence northerly along the said Interprovincial Boundary eighteen miles (18 miles) to a point; thence west astronomically twenty-four miles (24 miles) to a point; thence south astronomically twelve miles (12 miles) to a point; thence west astronomically twelve miles (12 miles) to a point; thence north astronomically six miles (6 miles) to a point; thence west astronomically six miles (6 miles) to a point; thence north astronomically fifteen miles (15 miles) to a point; thence east astronomically twelve miles (12 miles) to a point; thence north astronomically nine miles (9 miles) more or less to a point on Speight's base line; thence westerly along said Speight's base line twelve miles (12 miles) to a point; thence north astronomically six miles (6 miles) to a point; thence east astronomically twelve miles (12 miles) to a point; thence north astronomically eighteen miles (18 miles) to a point; thence west astronomically twenty-four miles (24 miles) to a point; thence north astronomically six miles (6 miles) to a point; thence west astronomically twenty-four miles (24 miles) to a point; thence south astronomically twenty-four miles (24 miles) to a point; thence east astronomically twelve miles (12 miles) to a point; thence south astronomically twelve miles (12 miles) to a point; thence east astronomically six miles (6 miles) more or less to the intersection with the production northerly of Ontario Land Surveyor Speight's meridian line run in 1904; thence southerly along said production and along said Speight's line twenty-one miles (21 miles) to a point in the north boundary of the Township of Kennedy; thence easterly along the northerly boundary of the Township of Kennedy six miles (6 miles) more or less to the northeast angle of said Township; thence south along the easterly boundary of the Township of Kennedy nine miles (9 miles) more or less to the point of commencement; containing by admeasurement two thousand four hundred and sixty-six (2,466) square miles, as shown on the map hereto annexed enclosed by heavy black lines and shown in blocks one to seventy both inclusive, and the Townships of Barnet, Thackeray, Tannahill, Dokis, Elliot, Melba, Bisley, Clifford, Ben Nevis and Pontiac, all in the said District of Cochrane.

2. The Company, for the right to cut the pulpwood on the said area, as above described, shall pay such rates as shall be fixed from time to time by the Lieutenant-Governor in Council in periods of five years, but in no case shall the Crown dues so to be fixed be at higher figures than the price at which the general public shall be permitted to cut on other portions of the Crown domain, or than others similarly situated shall be permitted to cut.

3. It is distinctly understood that the Company obtains the right to cut the timber only, and has no right to the soil or use thereof, except as may be necessary for cutting and removing the wood and timber, as aforesaid, subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Minister.

4. The wood and timber shall be cut upon such portions of said territory, and in such manner as the Minister may from time to time direct, and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payments of such annual charge for fire protection, as may from time to time be fixed by the Lieutenant-Governor in Council.

5. All pulpwood cut on the said territory shall be used for the supply of, and shall be manufactured at, the said mill or extensions thereof or additions thereto.

6. The Crown does not guarantee any particular quantity of wood or timber nor undertake to do more than grant the right to cut such quantities of wood or timber as may be on said area, subject to the reservations and conditions hereinbefore provided.

7. All slash made about camps, dumps, along tote roads, railroads, or at any other points which might constitute a serious fire menace, shall be disposed of as directed by an officer of the Department.

8. Proper sworn returns of wood and timber cut each season shall be made by the Company to the Crown, in conformity with the Crown Timber Act and Regulations thereunder, and payment of dues upon all the wood and timber cut by the Company shall be made by the Company to the Crown forthwith upon the rendering from time to time by the Crown to the Company of an account thereof; and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of the enforcement of such payments and of any interest charges thereon as are now or hereafter may be provided in the case of the dues on timber cut under timber license.

9. Pulpwood taken out in 4-foot or 8-foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

10. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest; and if upon inspection it appears, and the Minister so decides, that the said timber operations are carried on in such a way that any merchantable or valuable timber that should be removed is being left or destroyed, the Minister shall have the right to estimate the said timber so remaining uncut or being destroyed, and charge the same to the Company at, and the Company shall pay therefor, the same rate of dues as if the same had been actually removed by the said Company.

11. The cutting and removing of timber on said territory or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown nor until such operation shall have been declared satisfactory by the Minister.

12. The Company shall not, at any time or in any place, deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals, or matter of any kind, which shall be injurious to fish life, or have the effect of destroying, harming or driving away the fish in such river, stream or water.

13. All water powers and privileges on said territory and the right of the Crown to raise, hold, lower, and maintain the waters on the rivers, streams and lakes in such territory at such height and in such conditions as may be found necessary and expedient for the development of such water powers, are reserved to the Crown.

14. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said territory on the same terms and conditions for settlement, mining, or other purposes as ordinary Crown Lands situated elsewhere, and this agreement is not to impede or retard settlement, or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

15. Nothing herein contained or to be done hereunder or by virtue hereof, shall entitle the Company to a monopoly in the use of any rivers, streams, or lakes or tributaries thereof, in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the Company in any way interfering with the driving of logs or timber down the said rivers, streams or lakes or tributaries thereof, the Minister, as well as such other lawful authority as may be constituted therefor, shall have full power to determine from time to time the provisions necessary to overcome such interference, and thereupon the said Company, as and when directed, will make provision accordingly.

16. It is distinctly understood and agreed that the Company shall not cut or remove any timber from any territory or area covered by this agreement while under license or permit from the Crown, except upon the written consent of the Minister.

17. Upon all dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter, the Company, without prejudice to the power of the Crown to enforce the payment of such dues at any time the Minister may think proper, shall pay to the Crown interest at the rate of six per cent. (6%) per annum from said thirtieth day of September, and upon all of such dues remaining unpaid on the thirty-first day of October then next ensuing, the Company shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

18. In the event of failure on the part of the Company to comply with any of the terms, requirements, provisions or conditions contained herein, the Minister may revoke the right, license or permit to cut the said forest products, and upon the said revocation all rights of the Company under the agreement shall be and become *ipso facto*, null and void, provided that thirty days' notice in writing of intention to revoke the said right, license or permit shall be given by registered letter addressed to the Company at Iroquois Falls, Ont.

19. The Minister shall have the power to waive the right of the revocation caused by any failure on the part of the Company herein provided for.

20. The word "Minister" shall mean Minister of Lands and Forests of the Province of Ontario.

21. This agreement shall be binding upon and enure to the benefit of the Company, its successors and assigns; provided, however, that this agreement and the term created shall not be assigned or transferred without the written consent of the Minister, endorsed on said assignment or transfer.

22. The said parties, for themselves, their successors, heirs and assigns, respectively, do hereby covenant and agree to the full performance on their part, respectively, of everything herein stipulated to be done.

IN WITNESS WHEREOF said Minister of Lands and Forests for the Province of Ontario, and the Company, have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED

In the Presence of:

F. J. NIVEN.

W. H. SMITH.

(SEAL)

BENIAH BOWMAN.

THE ABITIBI POWER AND PAPER COMPANY,
LIMITED.

F. H. ANSON, *President*.

L. R. WILSON, *Secretary*.

(SEAL)

Appendix No. 46.

THIS AGREEMENT made in triplicate this Tenth day of July, 1923,

BETWEEN: His Majesty the King, represented by the Honourable the Minister of Lands and Forests of the Province of Ontario, hereinafter called "The Crown,"

OF THE FIRST PART,

—and—

Continental Wood Products Company, Limited, hereinafter called "The Grantee,"

OF THE SECOND PART.

WHEREAS by advertisement, duly published, the Honourable the Minister of Lands and Forests for Ontario called for tenders to be received by him up to and including the twenty-second day of June, 1923, for the right to cut pulpwood and timber on a certain area situated in the watershed of the Trout and Chapleau rivers in the Districts of Sudbury and Algoma, hereinafter more particularly described.

AND WHEREAS on the twenty-second day of June, 1923, the said Minister received from the grantee a tender for the right to cut pulpwood and timber on said area, which said tender has been approved and accepted.

AND WHEREAS the right to cut pulpwood and timber on said area was, by said advertisement for tenders and by the tender of the said grantee, based upon and subject to certain terms, conditions and stipulations.

AND WHEREAS this agreement is entered into for the purpose of ensuring the performance by the grantee of the obligations contained in said tender and acceptance thereof as hereinafter defined, and of securing the grantee the said supply of pulpwood and timber for the purpose of the mill or mills to be established, maintained, conducted and carried on within the said area or at some point in Ontario approved by the Minister.

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises it is agreed by and between the grantee and the Crown, as follows:

1. On or before the thirtieth day of December, 1923, the grantee shall have commenced construction work on a Kraft pulp mill in the said area or at some other place in the Province of Ontario approved by the Minister and will thoroughly equip the same so that the expenditure in connection with the erection, equipment, and machinery of said Kraft pulp mill contained in said Kraft pulp mill will be at least One million five hundred thousand dollars (\$1,500,000) and shall expend in connection with the erection, equipment and machinery of said Kraft pulp mill as follows: On or before the first day of June, 1924, the sum of Five hundred thousand dollars (\$500,000); on or before the first day of January, 1925, a further sum of Five hundred thousand dollars (\$500,000); and on or before the first day of June, 1925, a further sum of Five hundred thousand dollars (\$500,000), making in all the said sum of One million five hundred thousand dollars (\$1,500,000); or on or before which last-mentioned date the grantee shall have said Kraft pulp mill fully equipped and in operation.

2. Upon and after the completion of said Kraft pulp mill, the grantee, during the currency of this agreement, shall operate and continue to operate the said Kraft pulp mill so that the daily output thereof shall, in each and every

year during the currency of this agreement, be not less than seventy-five tons (75) of Kraft pulp and shall cut from said area at least fifty thousand cords (50,000) of pulpwood in each and every year during the currency of this agreement and shall for at least ten months in each and every year during the currency of this agreement employ and keep employed within the said Kraft pulp mill in connection with the operation of the same an average of at least one hundred (100) persons, and the employment of said persons as aforesaid shall form part of the consideration for the price of said pulpwood and timber.

3. Within such time and at such place as the Minister may direct, the grantee shall erect a Kraft paper mill having a capacity of at least fifty (50) tons of paper per day; and, after the erection thereof, shall operate the same continuously during the currency of this agreement so that in each year during the currency of this agreement, the average daily output of the said Kraft paper mill shall not be less than thirty-five (35) tons of Kraft paper.

4. Commencing with the month of January, 1926, the grantee shall, in the month of January of each and every year during the currency of this agreement, deliver to the Minister upon such form as the Minister may direct, statements, verified by the oath of the secretary of the grantee, showing (first) the persons who, during the calendar year ending with the thirty-first day of December then next preceding were employed by the grantee in operating the said Kraft pulp mill; (second) the daily output of the said Kraft pulp mill during the calendar year ending with the thirty-first day of December then next preceding; and in each of said statements shall furnish also such other details in connection with said matters as the Minister may require.

5. The cutting of the said pulpwood and timber may begin as soon as but not before the sum of One million dollars (\$1,000,000) shall have been expended on the erection of the said Kraft pulp mill and equipment thereof.

6. In consideration of the bonus hereinafter mentioned, and of the said expenditure, and of the contracts and agreements entered into on the part of the grantee, and subject to such terms, conditions and regulations as to locality and manner of cutting, driving and removing the same as may from time to time be imposed by the Minister, and subject also as hereinafter set forth and contained, the Crown will and doth grant to the grantee the right to cut and remove all the spruce, balsam, banksian or jack pine, poplar and whitewood trees sufficient to supply the said mill or mills to be erected for a period of twenty-one (21) years from the date hereof, and also to remove all red and white pine trees of a diameter of ten (10) inches and upwards at two (2) feet from the ground, and also spruce, banksian or jack pine, too large for pulpwood purposes, from the unlicensed, unsold and unlocated lands of the Crown hereinafter described, namely:—

Being the townships of Loughheed, Davin, Amundsen and Kapuskasing in the District of Algoma, and the townships of Bonar, Shenango, Lemoine, Lincoln, Copperfield, Lipsett, Floranna, Sadler, Alcorn, Paul, Collins, Pattinson and Racine, in the District of Sudbury, having a total area of 1,049 square miles more or less.

Saving, excepting and reserving nevertheless to the Crown all the spruce and balsam in the said townships of Bonar, Lipsett, Copperfield, Sadler and Racine, having a total area of 306 square miles, more or less; and upon which said last described area other persons to whom any right has been already given or may hereafter be given to cut and remove timber other than that herein granted to the grantee, may so cut and remove said timber; and saving, excepting and reserving also the right of way of the National Railway; and also

all lands under the waters of all rivers, lakes and streams within the said hereinbefore first described area of 1,094 square miles, more or less, and also all lands heretofore patented, licensed, leased, located, or applied for, in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister entitles the applicant or applicants to a lease or patent for such lands, together with the right of the Crown to sell, lease, locate or otherwise dispose of any lands included in the hereinbefore first described area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere; and also the right of the Crown and all other authorities authorized by statute to lay out and construct on any portion of said hereinbefore first described lands a colonization or other road or roads and any road in lieu of or partly deviating from any allowance for a road, without making compensation therefor.

7. The Grantee, as to the right to cut the pulpwood and timber on the said area as above described, shall pay the following bonus on said pulpwood and timber, that is to say:—

White pine, per thousand feet B.M.....	\$6.26
Red pine, per thousand feet B.M.....	6.10
Jack pine, per thousand feet B.M.....	2.65
Spruce, per thousand feet B.M.....	5.17
Spruce, pulpwood, per cord.....	.50
All pulpwood other than spruce, per cord.....	.30
Fuel wood, per cord.....	.05
Railway ties, per tie.....	.06
Cedar posts, each.....	.03
Cedar poles, 30 feet and less in length.....	.05
Cedar poles, over 30 feet and up to 40 feet.....	.10
Cedar poles, over 40 feet and up to 50 feet.....	.15
Cedar poles, over 50 feet.....	.20

and in addition to said respective bonuses shall pay on each of said classes and descriptions of timber the present rate of Crown dues or such other rates of dues as may from time to time be fixed by the Lieutenant-Governor in Council for such pulpwood and timber respectively.

8. It is distinctly understood that the grantee obtains the right to cut the pulpwood and timber only and has no right to the soil or use thereof except as may be necessary for cutting and removing the pulpwood and timber as aforesaid and subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Minister.

9. The pulpwood and timber shall be cut upon such portions of said territory and in such manner as the Minister may from time to time direct. All slash made about camps, dumps, along tote-roads, within 300 feet of the right of way of railroads, or at any other point which might constitute a serious fire menace, shall be disposed of in a manner satisfactory to the Minister, and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payment of such annual charge for fire protection as from time to time may be fixed by the Lieutenant-Governor in Council.

10. Pulpwood taken out in 4-foot or 8-foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above eight feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

11. All pulpwood cut on the said territory shall be used for the supply of and shall be manufactured at the said mills (or extensions thereof or additions thereto approved of by the Lieutenant-Governor in Council). All other timber shall be sold subject to the manufacturing condition, that is to say, it shall be manufactured in the Dominion of Canada.

12. Proper sworn returns of the quantity of pulpwood and other timber cut each season shall be made to the Crown in conformity with The Crown Timber Act and regulations thereunder, and payment of bonus and Crown dues upon all the pulpwood and other timber cut by the grantee, shall be made by the grantee for such pulpwood and timber not later than the first day of October in each year, and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of enforcing such payments and the payment of any interest charges thereon, as are now or may hereafter be provided in the case of dues on timber cut under timber license.

13. Upon all bonus and dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter, the grantee, without prejudice to the power of the Crown to enforce the payment of such bonus and dues at any time the Minister may think proper, shall pay to the Crown interest at the rate of six per cent. (6%) per annum from said thirtieth day of September, and upon all of such bonus and dues remaining unpaid on the thirty-first of October then next ensuing, the grantee shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

14. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest, and if upon such inspection it appears to the Minister and the Minister so decides that the said pulpwood or timber operations are carried on in such a way that any merchantable or valuable pulpwood or timber that should be removed is being left or destroyed, the said Minister shall have the right to estimate the pulpwood and timber so remaining uncut or being destroyed and the grantee shall pay therefor the same rates of dues and bonus as if the same had been actually removed by the said the grantee.

15. The cutting and removing of pulpwood and timber in the said area or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown, nor until such operation shall have been declared satisfactory by the said Minister.

16. The grantee shall not at any time or at any place deposit, empty, run or turn into any river, stream or other waters whatsoever, any refuse, sawdust, chemicals or matter of any kind which shall or may be injurious to fish-life or have the effect of destroying, harming or driving away the fish in such river, stream or water.

17. All water powers and privileges on said hereinbefore first described area and the right of the Crown to raise, hold, lower, and maintain the waters on the rivers, streams and lakes in said area at such height and in such conditions as may be found necessary and expedient for the development of such water power, are reserved to the Crown, but the Crown will be prepared to negotiate with the grantee in order to enable the grantee to secure an undeveloped water power to develop for the operation of the mill or mills hereinbefore mentioned.

18. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said hereinbefore first described area on the same terms and conditions for settlement, mining or other purposes as ordinary

Crown lands situated elsewhere, and this agreement is not to impede or retard settlement or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate or otherwise dispose of lands in the aforesaid hereinbefore first described area for settlement, mining or other purposes.

19. Nothing herein contained or to be done hereunder or by virtue hereof, shall entitle the grantee to a monopoly of any rivers, streams or lakes or tributaries thereof in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the grantee in any way interfering with the driving of logs or timber down the said rivers, streams, or lakes, or tributaries thereof, the Minister shall have full power to determine from time to time the provisions necessary to overcome such an interference, and thereupon the said the grantee as and when directed shall make provision accordingly.

20. It is distinctly understood and agreed that nothing herein contained shall, without the consent in writing of the Minister, be deemed to confer any right to cut or remove any timber from any area while under license or permit from the Crown.

21. The sum of fifty thousand dollars (\$50,000) deposited by the grantee with its tender for the above area shall remain on deposit until the Kraft pulp mill is erected and in operation as hereinbefore provided to guarantee the due performance by the grantee of the obligations of the grantee under this agreement to erect and operate said Kraft pulp mill, which said deposit shall be forfeited to the Crown in the event of the failure of the grantee to fulfil all or any of said obligations. Any timber cut in the meantime shall be subject to payment of dues and bonus as accounts for same are rendered. After the said pulp mill is erected and in operation the deposit of \$50,000 may be applied on account of bonus dues as they accrue, but the regulation dues as mentioned above shall be paid in the usual manner as returns for cutting of wood and timber are received and accounts rendered.

22. The Crown does not guarantee any particular quantity of wood or timber nor undertake to do more than grant the right to cut such quantities of wood or timber of the kind aforesaid as may be on the said area, subject to the reservations and conditions hereinbefore provided.

23. Whenever and as often as it is requested the grantee shall forthwith cut and remove all pulpwood and other timber hereby granted to the grantee from all road allowances heretofore or hereafter laid out in said first described area by the Crown or other authority authorized by statute to lay out or construct roads therein.

24. In the event of failure on the part of the grantee to erect, construct or operate the said Kraft pulp mill and paper mill, or either of them as herein agreed, or in default of the said the grantee keeping said Kraft pulp mill and said paper mill in operation after the erection thereof respectively as herein agreed, or keeping the required number of persons employed as herein agreed, or upon default of compliance with any other of the terms, requirements or conditions as aforesaid, the Crown may revoke the right, license or permit to cut the said pulpwood and timber, and upon said revocation all the rights of the grantee shall be and become *ipso facto* null and void, and all moneys paid as a deposit, or bonus therein, shall be forfeited to the Crown, provided that thirty days notice in writing of intention to revoke the said right license or permit shall be given by registered letter addressed to the grantee at Elsas,

Ontario, before any revocation, in order that the grantee may have an opportunity of being heard should it so desire.

25. The Minister may, by writing signed by the said Minister, waive the right to revocation caused by any failure on the part of the grantee herein provided for.

26. The word "Minister" shall mean Minister of Lands and Forests for the Province of Ontario.

27. This agreement shall be binding upon and enure to the benefit of the grantee, its successors and assigns, provided, however, that this agreement and the terms created shall not be assigned or transferred without the written consent of the Minister.

28. The said parties, for themselves, their heirs and assigns respectively, do hereby covenant and agree to the full performance on their part respectively, of everything stipulated to be done.

IN WITNESS WHEREOF, said Minister of Lands and Forests for the Province of Ontario has hereunto set his hand and seal and the grantee has affixed its corporate seal and the Vice-President and Secretary of the grantee have signed.

Signed, sealed and delivered
in the presence of

(Sgd.) F. J. NIVEN.

(Sgd.) BENIAH BOWMAN,
Minister, Dept. Lands and Forests.

(Sgd.) L. E. BLISS,
Vice-President,
Continental Wood Products Co., Ltd.

(Sgd.) E. B. SAGENDORF,
Secretary,
Continental Wood Products Co., Ltd.

(Seal)

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1924

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

Printed and Published by Clarkson W. James, Printer to the King's Most Excellent Majesty

1925



TO HIS HONOUR HENRY COCKSHUTT, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1924.

JAMES LYONS,
Minister.

HONOURABLE JAMES LYONS,
Minister of Lands and Forests.

I have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1924.

W. C. CAIN,
Deputy Minister.

Toronto, March 31st, 1925.

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Report of the Minister of Lands and Forests of the Province of Ontario

For Year ending 31st October, 1924.

LAND TRANSACTIONS

To record with any degree of detail the land transactions during the past year would be impossible in a brief space, as they not only cover a large variety of purposes but extend over a wide area.

For agricultural purposes in pioneer settling there were slight increases in the number of free grant locations over the previous year although the areas allocated for free homesteading is gradually lessening, this class of land having been largely sought and granted in the past. The purchase of lands at fifty cents an acre for similar purposes increased considerably throughout the year, a large number having availed themselves of farm lands in the great clay belt traversed by the Transcontinental Railway. Additional lands opened in the vicinity of Kapuskasing and Hearst were eagerly sought. The opening of the lands was restricted to stretches immediately contiguous to the line of railway, the idea being to encourage compactness rather than isolation of settlement, and thus develop more readily community life and reduce the per capita cost of road construction.

An important step was taken by the government to foster settlement in Northern Ontario, by the appointment of a supervisor of settlement, in the person of Colonel W. R. Smyth, a northern pioneer of many years' standing, a former Member of the Legislature of Ontario and later of the House of Commons. His knowledge and experience of the great northland will lessen the task of developing a system of closer co-operation between the Department and settler, whereby the latter's needs can be more closely studied and sympathetic treatment accorded.

Parts of new townships were opened for settlement in the Thunder Bay District, where a keen demand arose for land on the part of a number of Scandinavians, whose general adaptabilities for pioneering work in this section are recognized, and whose expressed desires for agricultural areas may result in substantial farming settlements.

The past year showed the greatest advance in pioneer land settlement since the war. Notwithstanding the fact that no new land was opened as free grants during the season, 98,487 acres were granted to actual settlers free, as compared with 90,143 during 1923.

In the purchased lands there is a marked increase over the former year, of approximately 30,000 acres, the actual figures for 1923 being, 137,977 acres, as compared with 165,184 acres. Settlement shows a very marked improvement in stability, the number of assignments in both free grant and sale land being considerably less.

Seven hundred and twenty-seven free grant locations were carried out as against 718 for last year, while 1,204 individual sales, covering farm lots, were allowed, or an increase of 226 over the previous year.

The clay belt continues to be the most attractive,—one reason of course, is the larger area from which to select,—but with its productive possibilities, quantities of pulp and building material, natural drainage, ample waterways and railway facilities, it holds a most unique position and is therefore unusually attractive to prospective aggressive settlers.

Exploiting lands of the Crown is prohibited and, while legitimate exchanges of holdings are necessary and advisable in some cases, general traffic in unpatented land is noticeably diminishing.

Systematic and periodical inspections result in not only preventing speculation in any form, but stimulating more vigorous settlement and cultivation of the land by bona fide settlers. In a continued endeavour to eliminate the timber farmer and absent holder, 535 free grant locations were cancelled and 507 sale holdings.

Detailed tables showing the disposition of land for settlement purposes according to districts, both as to free grant and sale transactions, are found in appendices 13 and 14. A study of these tables discloses the fact that of the total number buying land for settlement purposes, no less than forty-four per cent. took up lots on the Transcontinental, between Cochrane and Hearst, about twenty per cent. along the line of the T. & N. O. Railway, and the balance in the various other districts.

CLERGY, COMMON, AND GRAMMAR SCHOOL LANDS

The areas of lands set apart many years ago for these purposes are practically exhausted, and no dealings of any consequence are now consummated, although in a few isolated instances parties clean up title, by paying outstanding charges, and secure patent. On account of former sales in such cases the collections during the year amounted to \$2,638.35.

UNIVERSITY LANDS

Some 3,710 acres were sold under this heading for \$1,855.01 and \$1,290.19 collected.

CROWN LANDS

For agricultural, townsite and tourist purposes, 173,643.3 acres were sold, as against 154,018.94 acres for the previous year. The total collection on this acreage and former acreage sold was \$119,790.57 as against \$107,900.26 for the year 1922-23. Throughout the year 11,204.70 acres were leased for various purposes, the revenue derived from all leasehold areas amounting to \$89,775.48.

MILITARY GRANTS

By an amendment in 1922 to the Veterans' Act, cap. 6, 1 Edw. VII, the time for making locations expired and now the holder of a certificate has only the privilege of surrendering it for a cash consideration of \$50, or applying it as payment on Crown land at its face value, \$80. During the year eighteen certificates were surrendered and twenty-two patents were issued. Under the Act approximately 13,998 certificates were issued and all these have now been absorbed with the exception of about 1,050 which are still outstanding.

The above has no reference to the special privilege accorded returned Canadian Oversea Soldiers of the Great War, who are entitled to acquire free of charge, a half-lot in Northern Ontario, subject, however, to all settlement regulations, which require actual residence, systematic clearing and real farming. One hundred and thirty-one returned men took advantage of this opportunity during the year as against 113 last year, but because of failure to comply with the regulations, eighty-two lost their locations as against eighty-three for 1923.

TOURIST SITES AND PARKS

That interest is growing in our water resorts for tourist and hunting purposes is manifest from the many inquiries and the number of parcels sold and leased. Algonquin Park, the Mecca of seekers of health and enjoyment, continues to afford opportunities for numerous resident and non-resident summer and winter tourists, while beautiful Rondeau Park, in Kent County, is still a favourite point for thousands of lovers of the woods and water. A new subdivision of lots there was rapidly acquired by intending summer-home builders, who secured leases under reasonable terms. Quetico Park, in Rainy River District, had its usual quota of summer visitors, many of whom were from the adjoining state of Minnesota. Timagami, Nipigon and Mississauga Reserves, with their peerless beauty and their fish and game, attracted lovers of nature, anglers and hunters from far and wide.

With a view to providing tourists with the ready means of acquiring sites for summer homes within reasonable reach of railways, the Department has undertaken to reserve and subdivide for such purposes suitable areas and such sites will be given due publicity by the railways, which will closely co-operate with intending travellers in acquiring parcels from the Crown under fair terms and equitable building restrictions.

RANCHING

Individual settlers desiring to add to their present holdings for grazing purposes have availed themselves in certain sections of very reasonable terms. Numerous and insistent inquiries have been made with respect to marsh or low-lying lands for the breeding of muskrats and other fur-bearing animals, the generally expressed opinion being that an industry of immense proportions may be gradually developed without seriously affecting the general areas open as common trapping grounds to bona fide trappers. A few licenses of occupation were issued for this purpose and a number of applications are being investigated, the desire being to encourage through artificial means and careful protection intensive propagation in limited areas now depleted.

CROWN SURVEYS

Surveys of Crown lands were carried out only where they were actually necessary for the development of settlement and the completion of work undertaken the previous year.

Under the Surveys Act, the municipalities of the County of Lincoln and the townships of Sidney and Toronto Gore petitioned for surveys. Municipal surveys were performed and confirmed as petitioned for by the municipalities of the townships of Crowland, North Dumfries and Sidney, and the cities of Brantford and Toronto.

For detailed reports of surveys see appendices 20 to 36 inclusive.

WATER POWERS

An important water-power development in Northern Ontario at Island Falls on the Abitibi River, by the Hollinger Gold Mines Limited, to augment the power now used for mining purposes, is nearing completion, this undertaking being in operation throughout the year, engaging at least one thousand men and involving an expenditure of about five million dollars. The capacity of this plant is around 20,000 horse-power.

Important investigations were pursued on the Lower Mattagami by the Spruce Falls Company, whose plans contemplate the development of powers at Smoky Falls for the running of their present pulp mill and future paper mill at Kapuskasing. The power requirements at the head of the lakes necessitated the installation of the final unit at Cameron Falls, but even with this additional supply the needs of the immediate future will scarcely be met. The pulp industries existing in this zone, when running to their full contemplated capacities, will call for a heavy consumption and may accentuate the difficulties experienced by the Department during the past season in regulating the control of different watersheds to satisfy the requirements of the varied logging, driving and power interests. Improvements on the Wahnapiatae River, Dryden township, by the Wahnapiatae Power Company have also been made during the past season to increase their power supply.

Conservation dams in certain parts of the Province, including the Shebandowan watersheds, have been built during the year, the Government retaining control over same. The Norman dam and Lake of the Woods control have formed a question of extended discussion between the Province and Dominion and Manitoba, but a settlement under which Ontario's rights will be duly respected is practically accomplished.

Water powers are not alienated by the Crown but are merely leased under terms and conditions that provide a fair return to the Province in actual revenue and a big return in industrial and commercial prosperity.

TIMBER SALES

A marked change in the general system and practice of offering timber for sale was made. Heretofore, bidders were given the situation of the area involved and requested to make bids without regard to what the Crown considered a fair stumpage value. Each individual party was expected to cruise and estimate the kinds and quantities of timber thereon. Where competition was limited, the liability to offer a price merely beyond simple dues was present, and while the Crown could decline to accept any tender, the general practice was to deal fairly with the highest bidder and accept his tender if within a reasonable measure of what the Crown privately held to be fair. It was decided in fairness both to prospective purchasers and the Crown, that the Crown's estimate of the various classes of timber should be given and a minimum upset price fixed. Consequently all Conditions of Sales duly advertised now contain not only an estimate of the material, but a fair upset price beyond which tenderers are asked to bid. Bidders are thus saved considerable time and expense in cruising, since there is no necessity of making such a close examination when in possession of types and estimated quantities, while the Crown is assured of a fair and reasonable price. The results already attained in applying the new method have proved the wisdom of the course adopted.

Timber sales were largely excluded, in pursuance of the announced policy of the Government, to areas or limits contiguous to or required by existing

industries. It is the desire to afford going concerns opportunities to get additional supplies to secure investments, improve labour conditions and maintain community life dependent upon the logging and lumber industry.

In the Mississauga watershed, Algoma District, several townships were sold at prices which averaged in the case of red and white pine, nearly \$3 per thousand feet higher than like timber in former sales in the same section. These sales were the means of re-establishing on a firmer basis an industry of large proportions on the north shore of Lake Huron and of continuing in times when labour conditions are below normal, a number of going concerns. Certain areas within both the Quetico and Timagami Reserves were also sold by public competition. Areas of hardwood timber country in the Algonquin Provincial Park were especially cruised and found to contain valuable hardwood timber past maturity and deteriorating in quality. To provide against unnecessary loss, this timber was offered for sale. With a view to adequately maintaining the prime purposes for which the Park was created, special restrictions as to types, diameters, etc., were provided in the Conditions of Sale, and competition was keen, the prices received being regarded as exceptionally good.

Other hardwood tracts were sold in Merrick Township, Nipissing District, and in Proudfoot, Parry Sound District, each area having been acquired by a mill owner for manufacturing purposes. The prices for hardwood areas ranged from \$4 per thousand feet B.M. for poplar to \$6.75 per thousand feet B.M. for birch and maple, in addition to dues in each case. All this hardwood thus sold will be manufactured within the Province, as this class of timber is now subject to the manufacturing condition under the special legislation passed in 1923.

A tract of poplar was also sold in the township of Stratton, the purchaser being the Canadian Splint and Lumber Corporation, Limited, and this will furnish supplies for the match splint factory at Pembroke.

A complete list of the limits sold during the year will be found in appendix No. 41.

LOGGING AND LUMBERING

The general tone of depression evidenced in the latter part of the season of 1922-23 seriously affected the ability of the lumber operators to meet their financial obligations as was pointed out then. The outlook gradually improved and with a confidence born of faith in the industry, the operators proceeded with their cut and while not continuing as extensively as the year previous in log timber for lumbering, nevertheless, produced an output from Crown Lands of approximately 335 million feet of pine (including some 61 million feet of jackpine), and 62 million feet of other timber, less only by some 20 million feet of pine, but greater by 5 million feet with regard to other classes of log timber for lumber. The past year saw a marked increase in the railway tie production, it being in excess of the previous one by over 1,300,000 pieces.

Pulpwood operations exceeded expectations, the year showing a cut of 688,000 cords as against only 573,000 cords for the preceding season.

These facts prove most interesting when one considers the rather uncertain condition of the Canadian pine and spruce market in Eastern Canada during the past year. Extreme caution was exercised by all dealers and a continuation of the unsettled condition to the end of the fiscal year created doubts in the minds of several operators on the advisability of pushing bush operations for the coming season. Signs are slowly pointing towards a restoration to normal with the result that recent surveys by Departmental outside agents, while indicating a reduced output, predict larger operations than were anticipated by the trade two months ago.

PULP AND PAPER INDUSTRY

Pulp mills in the north are consuming large supplies of the raw material and all mills in operation last year are turning out pulp and paper in quantities as great as the preceding year.

The newsprint plants are probably in a securer position than the others and have expanded, while the pulp mills, the high-grade paper mills, wrapping and kraft paper mills generally, are sanely cautious, the American tariff on the finished product in part being the cause. The Great Lakes Company have completed and are operating their new groundwood pulp mill at Fort William, its capacity being 180 tons. The Guaranty Investment Company made additions to their holdings at Nipigon and are on a fair road to being an important producer. The Thunder Bay Paper Company in Port Arthur made an extension to their mill, increasing the capacity from 65 to 120 tons a day, the new equipment consisting of new pocket grinders, wet machines, hydraulic presses and loose power motors. These improvements will call for an extra 2,500 horsepower of electrical energy.

The Continental Wood Products have secured their site and made considerable expenditure in extending clearances in connection with their contemplated kraft mill at Elsas, on the Canadian National Railway, north of Sudbury, and it is hoped that another year will see its completion and the establishment of a great industrial centre at that point. The company are now conducting an extensive logging and sawmill operation, involving the employment of four to five hundred men and the production of large quantities of lumber.

The Backus interests completed their new 100 ton paper mill at Kenora, and same is in operation.

FOREST CRUISING AND ESTIMATING

Mapping forest types was continued and a large area hitherto not reported on in the western section of the Nipigon watershed, was mapped by means of aircraft and this with an additional area on the eastern section of the same waters, was covered by land parties for estimating purposes, these areas comprising roughly 6,885 square miles. The extensive work thus carried on by our own staff, operating our own aircraft and supervising experienced land parties, has placed the Crown in possession of much desired information. The detailed data are being tabulated for the permanent records and are essential to an intelligent treatment by the Government of the situation at the head of the lakes, where certain established concerns are in crying need of raw material for the continued development of the pulp and paper business which means so much to the industrial and commercial life of the country.

Further intensive work was done and reports made through the Crown timber agents on certain isolated blocks yet to be offered for sale. Reports also were made on areas where sales were carried out by public competition.

FOREST PROTECTION

This past season has been a very favourable one from the standpoint of controlling forest fires. The total loss in acreage and timber is very much below that of any previous season, since 1917. The most serious fire occurred in the south central part of Algonquin Park in the pine limit of the J. R. Booth, Limited, where approximately forty million feet of pine timber was affected, but due to the insistence of the Government and the active co-operation of the company, a comprehensive operation was undertaken immediately after the

fire and continued throughout the summer, the intention being to salvage the entire lot so that in the ultimate analysis the real timber loss will be infinitesimally small.

The season opened very early and we began having spring fires in April. This was owing to the dry condition in which the woods were left the previous autumn, without any water in the swamps. The early opening of the fire hazard required quite a large staff earlier than usual. During the middle of the summer, however, the favourable weather with rainy periods throughout the most serious summer months, enabled us to reduce the staff so that there was approximately 35 to 40 per cent less than the previous season.

Another abnormally dry period occurred very late in the autumn, running into the first few days of November, which required the maintenance of the skeleton staff much later than usual.

One of the outstanding features of this season's work was the introduction of aircraft as a means of patrol and detection, especially for outlying regions, thus enabling us to reduce the ground staff to a considerable extent.

To inaugurate the Provincial Aircraft Service, owned, controlled and operated by the Province, some fifteen H. S. 2-L flying boats were purchased. Over 2,500 hours were flown in the season of 1924, comprising a mileage of 167,375. The aircraft was used for patrolling, surveying, sketching, photographing and other purposes, and we have every reason to feel from our first year's experience that an important advance has been made in the policy of forest protection.

Another feature of this season's work was the purchase of fifty mechanical fire-fighting units in the shape of pumps and hose. This meant an expenditure of some \$50,000, but from reports gathered throughout many parts of the Province, these pumps have more than saved their price in making it possible to successfully cope with serious fires. The service now has 140 of such pumps with 280,000 feet of hose.

The total expenditure during the past season amounted to \$864,000, which is a little over \$200,000 less than last year, and this expenditure included the cost of all flying boats and maintenance in connection therewith. For closer details see special appendix No. 40.

REFORESTATION

The various forest stations reported a very successful season for the development of nursery work and the making of additional plantations, owing to favourable weather conditions. For instance, in the various nurseries there is a total of 25,500,000 plants, of which about 6,000,000 are ready for final planting.

During the past season there were a little over 3,000,000 plants sent out for permanent planting, as follows:—

Provincial Forest Station.....	437,280
Municipal plantations.....	633,260
Private landowners.....	1,954,671
	<hr/>
	3,025,211

Seed collecting was carried on during the autumn and a seed extracting plant was completed at Angus, in Simcoe County, which lies in the centre of a splendid region for collecting red and white pine.

For complete details see appendix No. 40.

COLONIZATION ROADS

The total expenditure for colonization roads within the area where this service operates was approximately \$450,000, as against \$830,000 for the previous year. To meet by-law requests under which the Crown spends an amount equal to that voted by the township, the sum of \$227,196.97 was spent, or approximately \$42,000 less, while the construction, maintenance and repair of roads and bridges, all of which is borne and expended by the Crown, cost in round numbers \$200,000, or over \$300,000 less than in the year 1923.

This was due in part to a portion of the territory lying north of the French River having been withdrawn from direct grants and taken care of by the Northern Development Vote, and in part also to restricting the spending of money to only such sections as necessity demanded.

The assistance thus granted those portions of the country where no immediate benefit is being derived from the Provincial Highway system is justified and appreciated.

NORTHERN DEVELOPMENT BRANCH

The construction of roads and bridges hitherto carried on in Northern Ontario, both by the Department of Public Works and the Department of Lands and Forests, was, under Order-in-Council, dated the 13th March, 1924, entirely assumed by the latter.

In addition certain road and bridge building, formerly chargeable to Colonization Road Vote, was carried on by the Branch. Notwithstanding these added services, the expenditure of \$3,296,000 throughout the year was a reduction from that of the previous one by approximately \$155,000.

Trunk road construction and improvement was responsible for most of the outlay although the lateral roadways received their share of attention and new roads were cut out as far as possible to keep pace with pioneer settlement.

Expenditures on fire relief, seed grain, agricultural implements, etc., and loans to settlers were continued during the year, but most of these show considerable decreases over previous year. It is interesting and encouraging to note that with respect to loans to settlers, repayment as to principal has been made to the extent of eighty-five per cent. and as to interest, ninety-one per cent.

For detailed particulars on Northern Development operations see appendix No. 38.

ACCRUALS AND COLLECTIONS

For the year the total accruals from timber and pulpwood operations were \$4,249,605.20, or over \$540,000 greater than the preceding year; this being very largely accounted for by an increase in fire charges of over \$200,000, part of which had been outstanding, an increase in cash deposits of \$135,000 paid at time of timber sales, and an increase in timber dues.

On this account collections to the extent of \$4,136,262.67 were received. Land sales, leases, fees, etc., added \$379,980.80, and payments under Northern Development services in the way of retired loans, etc., amounted to \$237,276.38, making a grand total for the year of \$4,753,519.93, the largest in the history of the Department. When the uncertain conditions of the lumber industry are considered and the apparent difficulties some of the operators are experiencing in marketing their assets, it is a source of satisfaction to record such a revenue.

DISBURSEMENTS

The total expenditure for which the Department was responsible amounted to \$5,735,300.64, or less than the year 1923 by \$1,319,211.78.

In the general service operations which exclude outlays of the Northern Development Branch, covered by and charged to a special legislative grant, considerable reductions on controllable expenditures were made. For instance, a saving of over \$200,000 was effected in fire ranging, where the cost was some \$864,000, and this included the purchase of an up-to-date air fleet comprising fifteen planes and additional pumps and hose, with other valuable equipment.

In a number of other items important reductions are also noted.

For a complete statement of disbursements under the various services other than the Northern Development Branch, see appendix 6, and for the latter see appendix No. 38.

APPENDICES

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1924

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Solicitor's Branch.	Hon. James Lyons	Minister	1923, July 16	\$6,000 00	
	F. H. Keefe	Legislative Secretary for Northern Ontario.	1923, July 16	6,000 00	
	W. C. Cain	Deputy Minister.	1903, Mar. 1	5,100 00	
	F. J. Niven	Minister's Secretary and Secretary to Department	1897, May 27	3,000 00	
	A. Ferguson	Assistant to Deputy Minister	1915, Dec. 15	2,700 00	
	M. E. Bliss	Senior Clerk Stenographer	1909, Aug. 16	1,400 00	
	E. Harrison	"	1920, May 14	1,200 00	
	D. H. Hamlin	"	1922, June 1	1,200 00	
	A. J. Allen	Clerk Stenographer	1921, May 2	975 00	Transferred from Prime Minister's Office, Nov. 1, 1923.
	B. Lankin	Junior Clerk	1921, Jan. 14	775 00	Resigned Sept. 1st, 1924.
Solicitor's Branch.	F. E. Titus	Solicitor to Department.	1920, Mar. 2	3,500 00	Resigned, Nov. 15, 1923.
	B. Chambers	Clerk Stenographer	1917, April 24	1,000 00	
	S. Draper	Chief Clerk	1900, May 1	3,000 00	
	W. R. Ledger	Principal Clerk.	1894, Feb. 15	2,400 00	
	C. E. Burns	"	1897, July 29	2,400 00	
	W. S. Sutherland	Senior Clerk.	1900, Mar. 18	1,900 00	
	J. B. Proctor	"	1897, Jan. 15	2,000 00	
	J. E. Drinkwater	"	1915, Oct. 19	2,000 00	
	A. E. Roe	"	1906, Oct. 16	1,900 00	
	F. A. Lucas	"	1906, Dec. 18	1,800 00	
Lands Branch.	S. A. Platt	"	1905, June 12	1,800 00	
	S. Mulholland	Junior Clerk.	1918, May 6	925 00	
	M. Bengough	Senior Clerk Typist.	1896, Oct. 23	1,300 00	
	E. F. O'Neil	"	1902, July 7	1,300 00	
	S. Ross	Senior Clerk Stenographer	1917, July 9	1,300 00	
	E. G. Halliday	"	1907, Feb. 21	1,300 00	
	B. M. Benson	"	1909, May 25	1,300 00	
	E. Hills	"	1912, July 2	1,300 00	
	A. E. Robillard	Engrossing Clerk.	1894, May 4	1,800 00	
	C. O'Connor	"	1907, Oct. 16	1,200 00	

Resigned Oct. 31, 1924.

Surveys Branch...	L. V. Rorke.....	Director of Surveys.....	1909, May 1	4,600 00
	J. Hutcheon.....	Inspector of Surveys.....	1913, April 1	3,600 00
	H. C. Smith.....	Cartographer.....	1919, Dec. 12	2,500 00
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct. 16	2,500 00
	J. Work.....	Principal Clerk.....	1909, May 18	2,200 00
	H. Treeby.....	Map Draughtsman.....	1896, June 25	1,900 00
	B. Rushford.....	"	1910, Jan. 24	1,800 00
	F. E. Blanchet.....	"	1906, May 15	1,900 00
	A. Leaman.....	"	1907, Sept. 12	1,900 00
	E. M. Jarvis.....	Senior Clerk.....	1897, April 25	1,900 00
	W. A. Hewitt.....	Clerk.....	1921, May 2	1,500 00
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July 21	1,300 00
	E. C. Arner.....	"	1909, Aug. 6	1,200 00
	Sidney Smith.....	Junior Clerk.....	1923, Sept. 7	775 00
Forestry Branch...	E. J. Zavitz.....	Provincial Forester.....	1912, Nov. 7	4,800 00
	C. R. Mills.....	Forester.....	1921, Mar. 28	3,300 00
	F. S. Newman.....	"	1913, Oct. 1	2,450 00
	J. Houser.....	Head Clerk.....	1905, July 17	2,700 00
	H. D. Gillard.....	Principal Clerk.....	1897, Dec. 6	2,200 00
	W. F. Trivett.....	"	1900, June 25	2,200 00
	N. L. Rogers.....	Senior Account Clerk.....	1911, Aug. 1	1,900 00
	A. H. O'Neil.....	Senior Clerk.....	1906, July 19	1,800 00
	G. W. Harris.....	Clerk.....	1906, Sept. 1	1,600 00
	S. D. Meeking.....	Senior Clerk.....	1910, Feb. 8	1,700 00
	E. H. Telfer.....	"	1915, Sept. 27	1,700 00
	E. H. Squire.....	Clerk.....	1916, Jan. 4	1,450 00
	E. F. Quigley.....	Junior Clerk.....	1921, May 4	925 00
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May 1	1,300 00
Accounts Branch...	J. Bald.....	"	1913, June 12	1,300 00
	J. Ferguson.....	Clerk Stenographer.....	1919, Aug. 4	975 00
	M. H. O'Brien.....	"	1922, May 22	975 00
	A. S. McKyes.....	"	1921, May 9	1,050 00
	H. M. Lount.....	Accountant.....	1903, Oct. 1	2,850 00
	C. J. Clarke.....	Senior Clerk.....	1905, Aug. 9	2,000 00
	W. A. Burritt.....	"	1907, Sept. 24	1,800 00
	R. Gordon.....	Clerk.....	1912, July 30	1,600 00
	C. C. Johnson.....	"	1921, May 16	1,400 00
	C. Bowland.....	Senior Clerk Typist.....	1908, July 9	1,300 00
	M. A. Whyte.....	Clerk Stenographer.....	1921, June 1	1,050 00

Died Feb. 8, 1924.

Resigned Aug. 31, 1924.

Appendix No. 1—Concluded

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1924

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Files Branch.....	S. K. Burdin.....	Head Clerk.....	1916, April 6	\$2,500 00	
	C. Dies.....	Clerk.....	1905, June 14	1,600 00	
	F. Samuels.....	".....	1903, Dec. 5	1,600 00	
	C. W. St. John.....	".....	1906, July 9	1,500 00	
	J. T. Lee.....	".....	1917, June 25	1,600 00	
	N. B. Mathewson.....	".....	1915, May 7	1,500 00	
	H. Brophy.....	Senior Clerk Messenger.....	1898, Oct. 1	1,300 00	
Colonization Roads Branch.....	C. H. Fullerton.....	Superintendent.....	1915, Oct. 15	4,600 00	
	C. H. Meader.....	Road Engineer.....	1912, June 14	2,850 00	
	M. P. Doherty.....	Principal Clerk.....	1898, May 1	2,100 00	
	A. Gamey.....	Account Clerk.....	1915, July 19	1,400 00	
	W. T. Axford.....	Junior Clerk.....	1910, July 11	1,100 00	
	J. Moore.....	Clerk Stenographer.....	1918, Dec. 9	975 00	

Appendix No. 2

List of Agents for the year ending October 31st, 1924

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
<i>Land Agents.</i>					
Arthurs, E.	Espanola Mills.	Part District of Sudbury.	1915, June 1	\$500 00	
Baker, R. H.	Minden.	Part Victoria.	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard.	Part District of Temiskaming.	1913, Aug. 1	1,200 00	
Both, C.	Denbigh.	Part of Frontenac and Addington.	1905, Oct. 20	200 00	
Blank, Frank.	Wilno.	Part District of Renfrew.	1921, Apr. 1	500 00	per day.
Bresnahan, John.	Hearst.	Part District of Cochrane.	1924, Apr. 28	3 00	
Brown, John.	Markstay.	" Nipissing and Sudbury.	1916, July 3	600 00	For salary see Homestead Inspectors.
Brown, J. B.	Bracebridge.	Muskoka District.	1905, July 28	.....	Resigned Aug. 1, 1924.
Cameron, W.	Stratton Station.	Part District of Rainy River.	1911, May 8	500 00	
Campbell, I. M.	Parry Sound.	" Parry Sound.	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie.	" Algoma.	1920, Nov. 18	300 00	Also Homestead Inspector.
Dempsey, S. J.	Cochrane.	" Cochrane.	1911, Feb. 1	1,100 00	
Dodds, T.	Thessalon.	" Algoma.	1915, May 1	500 00	Died May 20, 1924.
Douglas, W. J.	Maynooth.	Part Hastings.	1912, June 1	500 00	
Ellis, H. J.	Powassan.	Part District of Parry Sound.	1909, May 20	500 00	
Freeborn, Dr. J. S.	Magnetawan.	" " "	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden.	" Kenora.	1914, Dec. 5	1,100 00	
Hales, W.	Apsley.	Part County of Peterborough.	1911, July 17	250 00	
Hollands, C. J.	Fort Frances.	Part Township of Alberta & District of Rainy River	1892, Oct. 12	300 00	
Holland, H. E.	Kenora.	Part District of Kenora.	1921, Jan. 1	600 00	
McFayden, A.	Emo.	Part District of Rainy River.	1905, Sept. 8	600 00	Also Mining Recorder.
MacLennan, J. K.	Sudbury.	" Sudbury.	1905, July 3	700 00	
Marchildon, J. P.	Sturgeon Falls.	" Nipissing.	1923, Apr. 27	1 60	per day.
Mills, J. E.	Matheson.	" Cochrane.	1921, Aug. 1	1,200 00	
O'Donnell, J. L.	Hearst.	" " "	1921, May 3	800 00	Retired from office Mar. 29, '24
Parsons, W. J.	North Bay.	" Nipissing.	1908, Apr. 8	1,100 00	
Sheppard, H. E.	Kapuskasing.	" Cochrane.	1909, Feb. 13	.....	For salary see Homestead Inspectors.
Small, R.	Mattawa.	" Nipissing.	1910, July 1	500 00	
Teasdale, R. A.	Massey.	" Sudbury.	1917, July 1	600 00	
Thaw, D.	Emsdale.	" Parry Sound.	1910, July 2	500 00	
Watt, F.	Pembroke.	Part Renfrew.	1923, Sept. 11	300 00	
Whybourne, W. E.	Hilton beach.	Part St. Joseph Island.	1905, Apr. 7	300 00	

Appendix No. 2—Concluded

List of Agents for the year ending October 31st, 1924

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
Wilson, A. N.	Kinmount	Part District of Peterborough	1915, May 6	\$175 00	
Wilson, S. H.	Port Arthur	" Thunder Bay	1921, Nov. 26	1,200 00	
Woollings, Jos.	Englehart	" Temiskaming	1908, July 13	800 00	
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
<i>Homeslead Inspectors.</i>					
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec. 1	1,500 00	
Bastien, J. A.	Chelmsford	W. part of Sudbury District	1913, May 12	1,200 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28	1,100 00	Also Crown Lands Agent. Re- signed August 1, 1924.
Cragg, W. V.	New Liskeard	S. part of Temiskaming District	1913, Apr. 1	1,500 00	
Dean, Thos.	Sault Ste. Marie	Algoma District	1908, Aug. 3	900 00	Also Crown Lands Agent.
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct. 14	1,100 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F.	Callander	District of Parry Sound	1920, June 10	1,500 00	
Owens, H. B.	Cache Bay	E. part Sudbury and W. part Algoma Districts	1918, July 1	1,000 00	
Sheppard, H. E.	Kapuskasing	Part of District of Cochrane	1909, Feb. 13	1,800 00	
Smith, D.	Cochrane	N. part Temiskaming District	1912, Apr. 24	1,800 00	
Van Horn, L. E.	Monteth	Part Temiskaming and Algoma Districts	1920, Jan. 27	1,600 00	
Watson, T. P.	Englehart	Centre part of Temiskaming District	1905, May 10	1,500 00	
Wigle, R. G.	Dryden	Kenora District	1914, June 1	1,500 00	Also Crown Lands Agent.
<i>Timber Agents.</i>					
Christie, W. P.	Parry Sound	Part Parry Sound and Muskoka Districts	1903, Dec. 4	1,700 00	
Fletcher, N. B.	Parry Sound	" "	1923, Dec. 1	1,700 00	Superannuated July 1, 1924.
Hawkins, S. J.	Webbwood	Part Algoma and Sudbury Districts	1905, Aug. 16	2,100 00	
Huckson, A. H.	Sault Ste. Marie	Part District of Algoma	1914, Apr. 1	2,400 00	
Larose, S. C.	Ottawa	Part Ottawa District	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard	Part Temiskaming District	1907, Jan. 1	2,300 00	
McDougall, J. T.	North Bay	Nipissing and part Sudbury Districts	1908, July 1	2,400 00	
Spence, D. J.	Cochrane	Part Temiskaming and Algoma Districts	1920, Dec. 1	2,300 00	
Stevenson, A.	Peterborough	Belleville District	1905, Oct. 4	1,900 00	
Wood, W. G. A.	South Porcupine	Porcupine District	1917, Mar. 1	1,600 00	
Hartt, J. I.	Orillia	Inspector of Crown Timber Agencies and Super- visor of Operations in connection with Timber Administration	1923, Sept. 5	3,500 00	

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1924

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
<i>Lands Sold:</i>		\$ c	\$ c
Agricultural and Townsites.....	173,643.30	142,459 87	119,790 51
Clergy Lands.....	90.	45 00	968 55
Common School Lands.....			1,055 72
Grammar School Lands.....			614 08
University Lands.....	3,710.	1,855 01	1,290 19
<i>Lands Leased:</i>			
Crown.....	11,180.95	5,114 60	87,924 33
Temagami.....	23.75	370 00	1,851 15
	188,648.	149,844 48	213,494 53

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1924

Service.	\$	c.	\$	c.	\$	c.
LAND COLLECTIONS.						
<i>Crown Lands:</i>						
Agricultural.....	97,930	19				
Townsites.....	21,860	32				
			119,790	51		
Clergy Lands.....	968	55				
Common School Lands.....	1,055	72				
Grammar School Lands.....	614	08				
University Lands.....	1,290	19				
			3,928	54		
					123,719	05
<i>Rent:</i>						
Crown Leases.....			80,320	23		
Algonquin Provincial Park.....			2,762	56		
Rondeau Provincial Park.....			4,091	00		
Bruce Beach.....			712	84		
Temagami Leases.....			1,851	15		
Sand and Gravel.....			37	70		
					89,775	48
WOODS AND FORESTS.						
Bonus.....			1,352,487	77		
Timber Dues.....			2,275,006	32		
Ground Rent.....			103,558	62		
Fire Protection.....			398,283	71		
Transfer Fees.....			6,290	00		
Mill License Fees.....			636	25		
					4,136,262	67
<i>Parks:</i>						
Algonquin Provincial Park.....			6,662	56		
Rondeau Provincial Park.....			1,142	59		
Quetico Provincial Park.....			1,092	00		
					8,897	15
Casual Fees.....			1,514	41		
Cullers' Fees.....			667	10		
Forest Reserves Guides' Fees.....			189	00		
					2,370	51
REFUNDS.						
Forest Ranging.....			145,589	65		
Fire Ranging.....			4,471	87		
Surveys.....			2,403	55		
Reforestation.....			1,297	56		
Clearing Townsites and Removing Fire Hazards...			461	12		
Way Township.....			400	00		
Agents' Salaries and Disbursements.....			200	00		
Insurance.....			200	00		
Contingencies,			194	94		
					155,218	69
COLONIZATION ROADS AND NORTHERN DEVELOPMENT BRANCHES.						
					4,516,243	55
Colonization Roads—Refunds.....			3,713	39		
Northern Development.....			233,562	99		
					237,276	38
Grand Total.....					\$4,753,519	93

Appendix No. 5

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1924, which are considered as Special Funds

Service.	\$ c.	\$ c.
<i>Clergy Lands.</i>		
Principal.....	553 77	
Interest.....	414 78	968 55
<i>Common School Lands.</i>		
Principal.....	665 20	
Interest.....	390 52	1,055 72
<i>Grammar School Lands.</i>		
Principal.....	383 80	
Interest.....	230 28	614 08
<i>University Lands.</i>		
Principal.....	1,007 75	
Interest.....	282 44	1,290 19
		\$3,928 54

Appendix No. 6

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1924.

Service	\$	c.	\$	c.	\$	c.
AGENTS' SALARIES AND DISBURSEMENTS.....					98,636	33
OTTAWA AGENCY.....					2,649	91
CULLERS' ACT.....					466	43
ALGONQUIN PROVINCIAL PARK.....					40,326	95
ALLOWANCE SCHOOL SECTION, SOUTH WALSINGHAM...					300	00
ALLOWANCE SCHOOL SECTION, TOWNSHIP OF VESPRE...					500	00
BOARD OF SURVEYORS.....					200	00
BURLINGTON BEACH LAVATORIES.....					1,079	88
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS...					35,443	41
COLONIZATION ROADS.....					447,444	66
COMPENSATION TO CHIPPEWA AND MISSISSAUGA INDIAN TRIBES.....					100,000	00
COMPENSATION TO MRS. ROSA C. BONNER, FOR COST OF SURVEY.....					55	60
DISPLAY AT TORONTO EXHIBITION.....					920	94
FIRE RANGING.....					864,285	98
FOREST RANGING.....					461,478	59
FOREST RESERVES.....					5,841	79
GRANT CANADIAN FORESTRY ASSOCIATION.....					3,000	00
INSURANCE.....					2,883	62
LITIGATION OF CONSTITUTIONAL AND OTHER QUESTIONS					281	05
MOVING EXPENSES OF OFFICIALS.....					203	70
QUETICO PROVINCIAL PARK.....					9,523	77
REFORESTATION.....					201,690	15
REFUNDS—MISCELLANEOUS.....					10,333	72
RONDEAU PROVINCIAL PARK.....					8,153	79
SURVEYS.....					80,236	31
UNFORSEEN AND UNPROVIDED.....					1,211	74
VETERANS' COMMUTATION.....					851	52
WORKMENS' COMPENSATION.....					4,582	67
<i>Carried forward</i>					2,382,582	51

Appendix No. 6—Continued

Service	\$	c.	\$	c.	\$	c.
<i>Brought forward</i>					2,382,582	51
MISCELLANEOUS:						
Law Society of Upper Canada, fees.....					20	00
CONTINGENCIES, ADVERTISING, ETC.....					60,646	20
CONTINGENCIES, COLONIZATION ROADS.....					2,849	65
					2,446,098	36

For particulars of expenditure of the Northern Development Branch, see Appendix No. 38.

Appendix

FORESTRY

Statement of Timber and Amounts accrued from Timber Dues, Ground Rent,

QUANTITY AND

Agencies.	Area covered by timber licenses	Saw Logs.					
		Red and White Pine		Jack Pine		Other	
	Square Miles	Pieces	Feet B.M.	Pieces	Feet B.M.	Pieces	Feet B.M.
Western Timber District...	14,150	6,149,815	245,141,551	3,554,403	59,716,194	1,504,166	46,182,392
Belleville Timber District...	570 ¼	112,197	2,208,730	.....	.....	97,931	3,136,788
Ottawa Timber District....	4,415 ¾	395,375	22,548,682	21,233	328,275	310,315	10,254,032
	19,136	6,657,387	269,898,963	3,575,636	60,044,469	1,912,412	59,573,212

Statement

Agencies	Shingle Bolts	Cedar Posts	Tele-graph Poles	Pulp-wood	Railway Ties	Waney		Transfer Fees	Interest
	Cords	Pieces	Pieces	Cords	Pieces	Pieces	Cubit ft.		
Western Timber District...	14	51,729	16,182	668,656	3,014,943	.....	.....	\$ 4,605 c. 00	\$ 92,459 c. 14
Belleville Timber District ..	.....	6,979	641	275	4,944	.....	.....	245 00	55 71
Ottawa Timber District....	.....	88	1,563	19,137	1,697	340	15,351	1,440 00	3,091 86
	14	58,796	18,386	688,068	3,021,584	340	15,351	6,290 00	95,606 71

No. 7

BRANCH

Fire Protection and Bonus, etc., during the year ending 31st October, 1924

DESCRIPTION OF TIMBER

Boom and Dimension						Piling				Cordwood		Tan bark
Red and White Pine		Jack Pine		Other						Hard	Soft	
Pieces	Feet B.M.	Pieces	Feet B.M	Pieces	Feet B.M	Pieces	Lineal Feet	Pieces	Feet B.M.	Cords	Cords	Cords
31,338	4,824,366	14,609	1,232,800	16,774	1,918,009	1,449	55,499	3,293	286,197	2,894	41,025	992
885	146,951	.....	.....	752	114,898	.....	.....	.....	.....	30	29	9
1,574	135,045	.....	.....	3,598	519,327	.....	.....	.....	.....	.....	6,312	.....
33,797	5,106,362	14,609	1,232,800	21,124	2,552,234	1,449	55,499	3,293	286,197	2,924	47,366	1,001

of Timber—Concluded

Amounts Accrued.

Trespass	Mill License Fees	Timber Dues	Bonus	Deposit Timber Sales	Ground Rent	Fire Protection	Total
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
55,401 89	636 25	1,697,992 86	1,497,565 29	274,785 00	77,470 31	365,500 51	4,066,416 25
1,750 67	.....	11,745 60	235 18	.....	2,954 62	4,028 00	21,014 78
821 93	.....	89,987 37	15,612 81	.....	22,465 00	28,755 20	162,174 17
57,974 49	636 25	1,799,725 83	1,513,413 28	274,785 00	102,889 93	398,283 71	4,249,605 20

Appendix No. 8

FORESTRY BRANCH

Statement of Revenue collected during the year ending October 31st, 1924

Amount of Western Collections at Department.....	\$3,965,638 53
“ Belleville “ “ “	15,083 98
“ Ottawa “ “ “	155,540 16
	<u>\$4,136,262 67</u>

Timber Dues.....	\$2,275,006 32
Bonus.....	1,352,487 77
Ground Rent.....	102,558 62
Fire Protection.....	398,283 71
Transfer Fees.....	6,290 00
Mill License Fees.....	636 25
	<u>\$4,136,262 67</u>

WESTERN DIVISION—

Timber dues.....	\$1,797,694 55
Bonus.....	1,352,487 77
Interest, timber dues.....	91,955 46
Ground rent.....	77,470 31
Interest, ground rent.....	503 68
Fire protection.....	365,500 51
Timber sale deposits.....	274,785 00
Transfer fees.....	4,605 00
Mill License Fees.....	636 25
	<u>\$3,965,638 53</u>

OTTAWA DIVISION—

Timber dues.....	\$99,788 10
Interest, timber dues.....	2,976 66
Ground rent.....	22,465 00
Interest, ground rent.....	115 20
Fire protection.....	28,755 20
Transfer fees.....	1,440 00
	<u>155,540 16</u>

BELLEVILLE DIVISION—

Timber dues.....	\$7,800 65
Interest, timber dues.....	5 90
Ground rent.....	2,954 62
Interest, ground rent.....	49 81
Fire protection.....	4,028 00
Transfer fees.....	245 00
	<u>15,083 98</u>
	<u>\$4,136,262 67</u>

Appendix No. 9

CULLERS' EXAMINATION

As intimated in the last Report, the Ontario Cullers' Act (being Chap. 172 of the Revised Statutes of Ontario, 1914) was repealed, but notwithstanding such repeal all licenses heretofore issued under said Act, and now in force, and the holders of which are in good standing, shall remain valid.

The new Act (14 George V, Chap. 46) now provides that a person may secure a license for measuring sawlogs and pulpwood, or may secure a license to enable him to act as scaler of pulpwood only.

Examinations for Cullers' Licenses under the above Act were held on August 14th, 1924, at Callander, Thessalon, Fort Frances, Iroquois Falls and Elsas, when seventeen candidates succeeded in passing as sawlog and pulpwood cullers, and sixteen candidates were granted licenses to scale pulpwood only.

A large percentage of candidates was rejected, due mainly to the fact that they failed in the practical test. In a good many cases the parties presenting themselves had little or no previous experience in the scaling of logs where deductions for defects are necessary.

CULLERS' EXAMINATIONS

Five examinations were held during the year at Thessalon, Callander, Fort Frances, Iroquois Falls and Elsas on the 14th of August, 1924.

Thirty-three candidates were successful in passing at the examinations, seventeen being granted licenses to cull sawlogs and pulpwood, and sixteen obtaining licenses to scale pulpwood only. The following is a list of the parties who were successful, together with their post office address, place of examination and qualifications:

Name	Address	Place of Examination	License Qualifications
Anderson, E. R.	Kapuskasing	Iroquois Falls	Pulpwood only.
Bliss, R. Hamilton	Oba	Elsas	Sawlogs and Pulpwood.
Bailey, J. W.	Iroquois Falls	Iroquois Falls	Pulpwood only.
Brown, J. H.	Iroquois Falls	Iroquois Falls	Pulpwood only.
Crawford, R. J.	Thessalon	Callander	Sawlogs and Pulpwood.
Charette, J. A.	Cutler	Thessalon	Sawlogs and Pulpwood.
Charlebois, Peter	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Courtney, James	Iroquois Falls	Iroquois Falls	Pulpwood only.
Durrell, H.	New Liskeard	Callander	Sawlogs and Pulpwood.
Fisher, Morris	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Foy, K. N.	Iroquois Falls	Iroquois Falls	Pulpwood only.
Fanning, John	Kapuskasing	Iroquois Falls	Pulpwood only.
Fleming, F. L.	Haileybury	Iroquois Falls	Pulpwood only.
Galbraith, Angus L.	Fort Frances	Fort Frances	Sawlogs and Pulpwood.
Gibson, Wm. J.	Chapleau	Elsas	Pulpwood only.
Hughes, Duncan	Barwick	Fort Frances	Sawlogs and Pulpwood.
Huckson, Elmer	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Jackson, Shirl	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Kennedy, E. J.	South Porcupine	Iroquois Falls	Pulpwood only.
Maxwell, L.	Eau Clair	Iroquois Falls	Pulpwood only.
Morrison, G. W.	Iroquois Falls	Iroquois Falls	Pulpwood only.
Moore, A. H.	New Liskeard	Iroquois Falls	Pulpwood only.
McBean, Chester W.	McDougall's Mills	Fort Frances	Sawlogs and Pulpwood.
Palmer, Ivan	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Poupore, G. W.	Iroquois Falls	Iroquois Falls	Pulpwood only.
Phillips, W. H.	South Porcupine	Iroquois Falls	Pulpwood only.
Retty, James	Sault Ste Marie	Thessalon	Sawlogs and Pulpwood.
Ryan, Thos. M.	Pembroke	Elsas	Pulpwood only.

Appendix No. 9—Continued

Name	Address	Place of Examination	License Qualifications
Saunders, F. G.....	Sudbury.....	Callander.....	Sawlogs and Pulpwood.
Stone, Hume.....	Sault Ste Marie....	Thessalon.....	Sawlogs and Pulpwood.
Smith, Byron W.....	Blind River.....	Thessalon.....	Sawlogs and Pulpwood.
Taylor, Angus G.....	Sudbury.....	Elsas.....	Sawlogs and Pulpwood.
Wilson, D. M.....	Pembroke.....	Iroquois Falls.....	Pulpwood only.

In addition to the above candidates who passed in August last, the following were also granted licenses after obtaining further experience of one year:

Elliott, R. B.....	Milton.....	Callander.....	Sawlogs and Pulpwood.
Edwards, Ross.....	Powassan.....	Callander.....	Sawlogs and Pulpwood.
Legris, H. M.....	Dacre.....	Callander.....	Sawlogs and Pulpwood.
Maltby, Wm. E.....	Sturgeon Falls.....	Callander.....	Sawlogs and Pulpwood.
McGuire, Norbert T.....	Arnprior.....	Callander.....	Sawlogs and Pulpwood.
McManus, T. Basil.....	Arnprior.....	Callander.....	Sawlogs and Pulpwood.
Regan, Chas. E.....	Elk Lake.....	Callander.....	Sawlogs and Pulpwood.

Appendix No. 10

ACREAGE UNDER LICENSE

The area covered by Timber Licenses where the holder pays Regulation Gound Rent and Fire Charges, at the end of the year 1924, was 19,136 square miles.

The number of Crown Timber Licenses issued for the license season of 1923-24 was 922.

PULP CONCESSIONS

The area covered by pulp concessions exclusively amounts to 39,404 square miles, on which fire protection charges at the rate of \$3.20 per square mile are payable.

Appendix No. 11

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1923, to 31st October, 1924

Public Lands (late Crown).....	447
“ “ (late School).....	7
“ “ (late Clergy Reserves).....	3
“ “ (University).....	10
Free Grant Lands (Act of 1913).....	280
“ “ (Act of 1901 Veterans).....	22
Mining Lands (Patents).....	344
Mining Leases.....	178
Crown Leases.....	97
Licenses of Occupation.....	99
Temagami Island Leases.....	10
Sand and Gravel Licenses.....	29
Pine Patents.....	6
Water Power Leases.....	2
Releases of Pine.....	1
Orders-in-Council.....	4
Total.....	1,539

Appendix No. 12

Statement of the work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1924.

Veteran patents issued.....	22
Locations under military certificates.....	0
Certificates applied in payment of lands.....	1
Certificates surrendered for commutation money.....	18

Appendix No. 13

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Free Grant Townships during the year ending 31st October, 1924.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Baxter.....	Muskoka.....	W. B. Gerhart,	2	270	1	10	2	170	9	1,106
Brunel.....	"	Bracebridge..								
Cardwell.....	"	"								
Chaffey.....	"	"								
Draper.....	"	"								
Franklin.....	"	"							2	299
Freeman.....	"	"	1	206	1	1	2	311	1	101
Macaulay.....	"	"					4	796	1	64
Medora.....	"	"							1	99
Monck.....	"	"	1	186			2	374	1	100
Morrison.....	"	"	1	97			1	97		
Muskoka.....	"	"								
McLean.....	"	"	2	210	1	10	3	303	2	200
Oakley.....	"	"			1	75	2	238	1	74
Ridout.....	"	"	2	200			1	100		
Ryde.....	"	"	1	76			1	76	1	89
Sherbourne.....	Haliburton...	"	3	500			3	500	5	812
Sinclair.....	Muskoka.....	"							2	219
Stephenson.....	"	"								
Stisted.....	"	"								
Watt.....	"	"	2	204	4	55	3	500	1	126
Wood.....	"	"								
Blair.....	Parry Sound..	Miss I. M. Camp-								
		bell.....								
Burpee.....	"	"	3	483	1	25	1	100	2	302½
Carling.....	"	"	2	388			2	199	2	392
Christie.....	"	"			1	125	2	247	1	191½
Conger.....	"	"								
Cowper.....	"	"								
Foley.....	"	"								
Ferguson.....	"	"								
Hagerman.....	"	"	1	200			1	200	1	154
Harrison.....	"	"								
Henvey.....	"	"	1	200			1	200		
Humphrey.....	"	"	1	199			1	199		
McConkey.....	"	"	1	100			1	100	2	199
McDougall.....	"	"								
McKellar.....	"	"	1	100						
McKenzie.....	"	"	1	100	1	1	1	200	3	398
Monteith.....	"	"	1	177			4	477	1	100
Shawanaga.....	"	"								
Wilson.....	"	"	1	196	1	18	1	196	3	219
Chapman.....	Parry Sound..	Dr. J. S. Freeborn..	5	702	3	46	2	247	3	300
Croft.....	"	"					1	150	1	200
Ferrie.....	"	"							1	200
Gurd.....	"	"								
Lount.....	"	"	4	422	1	22	3	400	2	352
Machar.....	"	"	1	200			1	200		
Mills.....	"	"	1	94		81			2	266
Pringle.....	"	"	5	673			1	116	2	468
Ryerson.....	"	"	1	143			1	145	2	264
Spence.....	"	"	5	966	1	6	3	411		
Strong.....	"	"	2	382	1	10	2	382	2	300

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Armour.....	Parry Sound..	David Thaw,	2	207	.....	.....	2	207	3	300
Bethune.....	"	Emsdale..	2	216	.....	.....	3	518	1	154
Joly.....	"	"	3	300	4	76	7	858	10	1,499
McMurrich....	"	"	1	101	2	108	.....	.....	2	415
Perry.....	"	"	1	70	1	24	.....	.....	2	270
Proudfoot.....	"	"	4	400	.....	.....	1	100	.....	.....
Hardy.....	Parry Sound..	H. J. Ellis,	1	100	1	100	.....	.....	3	207
Himsworth.....	"	Powassan..	1	100	1	5	3	249	7	745
Laurier.....	"	"	2	300	1	100	2	200	9	1,499
Nipissing.....	"	"	5	808	4	7	3	608	3	301
Patterson.....	"	"	2	122	1	5	.....	.....	1	115
Bonfield.....	Nipissing.....	W. J. Parsons,	1	65	1	106	4	535	2	300
Boulter.....	"	North Bay..	4	402	.....	.....	.....	.....	5	751½
Chisholm.....	"	"	4	403	3	203	3	502	5	494
Ferris.....	"	"	2	203	.....	.....	1	100	2	298%
Anson.....	Haliburton...	R. H. Baker,	1	152	.....	.....	3	431	.....	.....
Glamorgan....	"	Minden..	.....	.....	1	99	.....	.....	1	116
Hindon.....	"	"	.....	.....	.....	.....	.....	.....	1	75½
Lutterworth...	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Minden.....	"	"	.....	.....	.....	.....	.....	.....	2	199
Snowdon.....	"	"	.....	.....	.....	.....	.....	.....	2	300
Stanhope.....	"	"	.....	.....	2	5	2	223	1	101
Anstruther....	Peterborough.	Wm. Hales, Apsley.	.....	.....	.....	.....	2	358	.....	.....
Burleigh, N.D.	"	"	.....	.....	.....	.....	.....	.....	.....	.....
" S.D..	"	"	1	17	.....	.....	1	86	1	88
Chandos.....	"	"	.....	.....	.....	.....	.....	.....	2	152
Methuen.....	"	"	.....	.....	.....	.....	.....	.....	1	200
Cardiff.....	Haliburton...	A. N. Wilson,	2	200	.....	.....	2	200	1	159
Cavendish....	"	Kinmount..	.....	.....	.....	.....	1	163	1	5
Galway.....	"	"	3	383	3	216	2	268	5	598
Monmouth.....	"	"	3	400	.....	.....	3	394	5	762
Bangor.....	Hastings.....	W. J. Douglas,	1	81	.....	.....	1	202	1	82
Carlow.....	"	Maynooth..	2	325	.....	.....	3	300	.....	.....
Cashel.....	"	"	.....	.....	.....	.....	1	150	.....	.....
Dunganon....	"	"	10	1,012½	1	99	2	162	3	365½
Faraday.....	"	"	.....	.....	.....	.....	1	143	1	200
Herschel.....	"	"	4	453	1	8	2	222	4	546
Limerick.....	"	"	.....	.....	.....	.....	2	197	.....	.....
Mayo.....	"	"	2	256	.....	.....	1	129	.....	.....
Monteagle....	"	"	4	329	.....	.....	2	197	6	655½
McClure.....	"	"	2	239	.....	.....	4	389	.....	.....
Wicklow.....	"	"	1	100	.....	.....	.....	.....	1	200
Wollaston....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Algona, S.....	Renfrew.....	Frank Blank,	.....	.....	.....	.....	.....	.....	.....	.....
Brougham....	"	Wilno..	.....	.....	.....	.....	.....	.....	1	50
Brudenell....	"	"	6	558½	.....	.....	4	315½	1	100
Burns.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Grattan.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Griffith.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Hagarty.....	"	"	6	572	.....	.....	4	346	2	379
Jones.....	"	"	4	352	.....	.....	1	100	1	51½
Lyell.....	"	"	3	482	2	12	.....	.....	.....	.....
Lyndoch.....	"	"	3	248	1	4	.....	.....	3	405

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Matawatchan..	Renfrew.....	Frank Blank,							1	200
Radcliffe.....	"	Wilno..	11	1,592	5	191	3	300	2	389
Raglan.....	"	"	1	97	2	200	2	300	5	950
Richards.....	"	"					1	94	1	222
Sebastopol....	"	"								
Sherwood.....	"	"	5	551	2	5	1	163	2	304
Algona, N.....	Renfrew.....	Finlay Watt,	1	100						
Alice.....	"	Pembroke..								
Buchanan.....	"	"	1	138	1	3			1	163
Clara.....	"	"								
Fraser.....	"	"			1	100			1	81
Head.....	"	"	3	300			1	100		
Maria.....	"	"								
McKay.....	"	"								
Petewawa.....	"	"								
Rolph.....	"	"	2	316			1	100	2	169
Wilberforce....	"	"			1	10			1	110½
Wylie Pt.....	"	"	2	175						
Calvin.....	Nipissing.....	Robert Small,	4	441			1	85	1	100
Cameron Pt....	"	Mattawa..	6	776			2	200	4	574
Lauder.....	"	"	2	214						
Mattawan.....	"	"	5	675			5	675		
Papineau.....	"	"	1	12					4	488
Korah.....	Algoma.....	Thos. Dean,								
Park.....	"	Sault Ste. Marie..								
Prince.....	"	"			3	461	1	160	3	431
Aberdeen.....	Algoma.....	Thos. Dodds,							4	568
" Addl.....	"	Thessalon..			2	276½				
Galbraith.....	"	"							1	165
Lefroy.....	"	"								
Plummer.....	"	"							1	117
" Addl.....	"	"								
St. Joseph Isd..	Algoma.....	W. E. Whybourne.	1	100			1	100	1	100
Hilton.....	"	"	3	377			3	377	4	494
Jocelyn.....	"	"							1	100
Baldwin.....	Sudbury.....	Edward Arthurs,	6	882			1	120	2	199¾
Merritt.....	"	Espanola..	1	159½			3	467½	2	155
Blake.....	Thunder Bay..	S. H. Wilson,	6	800	1	80	5	720	3	4,390
Conmee.....	"	Port Arthur..	5	606	2	75½	2	225	3	492½
Crooks.....	"	"	5	555			2	256½	2	336
Dawson Road..	"	"	11	1,005	2	96	11	1,277	6	746¾
Dorion.....	"	"	9	1,428¾			1	160	2	298½
Gillies.....	"	"	3	239¾			3	239¾	1	79
Gorham.....	"	"	15	1,883	8	611¾	7	831	4	524¾
Lybster.....	"	"	1	514¾	1	160	1	154¾	4	465
Marks.....	"	"	7	1,041½	2	86¾	5	714¾	1	164½
McGregor.....	"	"	7	923	2	161	5	716½	1	160
McIntyre.....	"	"								
O'Connor.....	"	"			2	162			4	562
Oliver.....	"	"			1	2½	1	160	1	162½
Paipoonge, N.R.	"	"			1	100			2	199
" S.R.....	"	"								
Pardee.....	"	"	4	600			1	160		
Pearson.....	"	"	5	709¾	3	81	4	665½	3	403½

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Scoble.....	Thunder Bay.	S. H. Wilson,	9	1,295 $\frac{1}{2}$	2	173	2	300	1	159 $\frac{1}{2}$
Stirling.....	"	Port Arthur..	12	1,888 $\frac{1}{2}$	2	81	5	797	4	699
Strange.....	"	"	4	641 $\frac{1}{2}$	1	3	3	482	1	139 $\frac{1}{2}$
Ware.....	"	"	21	2,635 $\frac{1}{4}$	4	317 $\frac{1}{4}$	8	1,129 $\frac{1}{2}$	9	1,144
Atwood.....	Rainy River..	Wm. Cameron,					2	322		
Blue.....	"	Stratton..	5	728	2	162	5	765	1	162
Curran.....	"	"	1	164	1	2	1	164		
Dewart.....	"	"	11	1,437 $\frac{3}{4}$	3	84	5	599	1	3
Dilke.....	"	"			1	2				
Morley.....	"	"							3	402
Morson.....	"	"	22	3,122	8	399 $\frac{3}{4}$	19	2,570	2	333
McCrosson....	"	"	19	2,428	1	8 $\frac{1}{2}$	16	1,673	2	324
Nelles.....	"	"	6	812 $\frac{1}{2}$	1	81	5	734 $\frac{1}{2}$	2	324
Pattullo.....	"	"	7	951 $\frac{1}{4}$	3	40	5	847 $\frac{1}{4}$		
Pratt.....	"	"	12	1,669	2	39	15	2,449		
Roseberry....	"	"								
Shenston.....	"	"							1	153
Sifton.....	"	"	6	932	2	104 $\frac{1}{4}$	8	920 $\frac{1}{4}$	3	439 $\frac{1}{2}$
Spohn.....	"	"	18	2,435 $\frac{1}{4}$	2	83 $\frac{1}{4}$	14	1,919 $\frac{1}{2}$	1	157 $\frac{1}{2}$
Sutherland....	"	"	13	1,932 $\frac{1}{2}$	5	174	10	1,521 $\frac{1}{2}$	3	493
Tait.....	"	"	5	658 $\frac{3}{4}$			7	918 $\frac{1}{4}$	3	274 $\frac{1}{2}$
Tovell.....	"	"	14	1,635 $\frac{1}{4}$	7	385 $\frac{1}{4}$	14	1,872 $\frac{3}{4}$	1	161
Worthington..	"	"								
Aylesworth....	Rainy River..	Alex. McFayden,								
Barwick.....	"	Emo..	1	161						
Burriss.....	"	"							1	160
Carpenter.....	"	"	1	160			2	240		
Crozier.....	"	"								
Dance.....	"	"	6	685 $\frac{1}{4}$	3	320	5	766 $\frac{3}{4}$	2	240 $\frac{1}{2}$
Devlin.....	"	"	1	161					1	162
Dobie.....	"	"	1	152 $\frac{1}{2}$	1	16 $\frac{1}{2}$	3	385 $\frac{1}{2}$	3	414 $\frac{1}{2}$
Fleming.....	"	"								
Kingsford.....	"	"	8	1,167 $\frac{3}{4}$	1	1	6	971	1	161
Lash.....	"	"								
Mather.....	"	"	1	159	2	156 $\frac{3}{4}$	1	172	3	401 $\frac{3}{4}$
Miscampbell..	"	"							1	160 $\frac{1}{2}$
Potts.....	"	"	1	160 $\frac{1}{2}$	2	1	5	675 $\frac{1}{4}$	3	480
Richardson....	"	"	1	159	1	48	5	928	2	288
Roddick.....	"	"								
Woodyatt.....	"	"								
Aubrey.....	Kenora.....	J. E. Gibson,	8	1,076 $\frac{1}{2}$	1	13 $\frac{1}{2}$	5	589 $\frac{1}{2}$	2	416 $\frac{1}{2}$
Britton.....	"	Dryden..	36	5,515 $\frac{1}{2}$	2	80 $\frac{1}{2}$	16	2,376 $\frac{1}{4}$		
Eton.....	"	"	11	1,309 $\frac{1}{2}$			10	1,301	6	938 $\frac{1}{2}$
Langton.....	"	"	3	511 $\frac{1}{2}$	1	73 $\frac{3}{4}$	3	468 $\frac{1}{2}$	1	158 $\frac{1}{2}$
Melgund.....	"	"	6	808			4	531		
Mutrie.....	"	"	9	1,219			7	887 $\frac{3}{4}$	2	472
Redvers.....	"	"	3	442 $\frac{3}{4}$			7	994 $\frac{1}{2}$	1	122
Rowell.....	"	"	13	2,052	8	361 $\frac{3}{5}$	6	891 $\frac{1}{2}$		
Rugby.....	"	"	4	640	1	79 $\frac{1}{2}$	5	798 $\frac{1}{2}$	1	160 $\frac{1}{2}$
Sanford.....	"	"	13	1,965	3	226 $\frac{3}{4}$	9	1,375 $\frac{1}{2}$	5	776
Southworth....	"	"	8	1,054 $\frac{1}{4}$	1	73 $\frac{1}{4}$	2	320		
Temple.....	"	"	12	1,901	5	328 $\frac{1}{4}$	5	823	1	76 $\frac{1}{2}$
Van Horne....	"	"			1	33			3	646
Wabigoon.....	"	"	3	493 $\frac{1}{2}$			3	464 $\frac{1}{2}$	5	681
Wainwright....	"	"	8	1,193 $\frac{1}{2}$	1	79 $\frac{3}{4}$	7	1,033 $\frac{1}{2}$	4	406 $\frac{1}{2}$
Zealand.....	"	"	15	1,909	3	201 $\frac{1}{2}$	10	1,370	1	160
Melick.....	Kenora.....	H. E. Holland,	14	2,241	2	24	12	1,827 $\frac{1}{2}$	1	161
Pellatt.....	"	Kenora..	3	358 $\frac{1}{2}$	2	133	3	411 $\frac{1}{2}$	4	410

Appendix No. 13—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Balfour.....	Sudbury.....	J. K. MacLennan,	1	106 $\frac{3}{8}$					2	266 $\frac{1}{2}$
Bleazard.....	"	Sudbury..	1	163			1	163		
Broder.....	"	"	1	153						
Capreol.....	"	"					1	146		
Chapleau.....	"	"	1	160 $\frac{1}{2}$	1	$\frac{1}{2}$	1	160 $\frac{1}{2}$		
Dill.....	"	"	2	320	1	7 $\frac{1}{2}$	1		4	606 $\frac{1}{2}$
Garson.....	"	"					1	160		
Hanmer.....	"	"					1	157 $\frac{1}{2}$		
Lumsden.....	"	"	1	160			1	160		
Morgan.....	"	"			1	1			1	161
Neelon.....	"	"								
Rayside.....	"	"	1	50 $\frac{3}{4}$			1	50 $\frac{3}{4}$		
Appleby.....	Sudbury.....	John Brown,	3	483	1	2	2	322		
Casimir.....	"	Markstay..	3	464	1	3	2	301		
Dunnet.....	"	"								
Hagar.....	"	"	6	961	1	80	9	1,437	1	160
Jennings.....	"	"	1	160			1	160		
Kirkpatrick....	"	"	2	320					1	171
Ratter.....	"	"	9	1,445 $\frac{1}{2}$			4	655 $\frac{1}{2}$		
Caldwell.....	Nipissing.....	J. P. Marchildon,					1	160		
Cosby.....	"	Sturgeon Falls	3	356			2	293	2	212
Grant.....	"	"	18	2,786 $\frac{1}{2}$	2	53	14	1,986 $\frac{1}{2}$	1	148 $\frac{1}{2}$
Macpherson.....	"	"								
Martland.....	"	"	4	634	1	1	2	321 $\frac{1}{2}$	1	161
Springer.....	"	"	1	160	1	121			2	245
Abinger.....	Lennox and Addington..	Chas. Booth,								
Canonto, S.....	Frontenac....	Denbigh..								
" N.....	"	"								
Clarendon.....	"	"							2	302
Denbigh.....	Lennox and Addington..	"	1	204			1	204	2	379
Miller.....	"	"								
Palmerston....	"	"	2	293	1	1	2	340		
McClintock....	Haliburton...	Unattached.....	1	100						
Gibson.....	Muskoka.....	"			1	1				
Shawanaga....	Parry Sound..	"								
Wallbridge....	"	"			2	13 $\frac{1}{2}$			2	13 $\frac{1}{2}$
Airy.....	Nipissing.....	"	1	100			1	100		
Finlayson.....	"	"								
Murchison.....	"	"	1	90					1	155
Sabine.....	"	"	10	1,308	1	65	1	100	2	195
Burton.....					4	21			1	2
Total.....			727	98,487 $\frac{3}{4}$	197	9,123 $\frac{3}{10}$	535	71,754 $\frac{3}{4}$	357	52,423 $\frac{3}{4}$

No. of lots assigned.....202

No. of acres assigned.....28,465

Appendix No. 14

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1924.

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Machin.....	Cochrane.....	S. J. Dempsay, Cochrane..	2,541	18	10	1,358		
Blount.....	"	"	3,427	23	6	793	7	2,702
Shackleton.....	"	"	3,628	27	11	1,448	1	86
Brower.....	"	"	3,034	19	11	1,766	5	790½
Pyne.....	"	"	7,962	50	9	1,522		
Newmarket.....	"	"	3,978	25	13	2,011	1	155
Fauquier.....	"	"	3,072	23	14	2,020	3	383
Fox.....	"	"	4,019	25	19	3,036		
Clute.....	"	"	3,260	22	14	2,025	10	1,486
Kennedy.....	"	"	1,578	10	9	1,425	1	150
Kendry.....	"	"	313	2				
Calder.....	"	"	6,176	40	21	3,237	2	300
Glackmeyer.....	"	"	627	5	10	1,467	10	1,494
Fournier.....	"	"	2,750	19	7	1,078½	1	164½
Leitch.....	"	"	4,248	30	10	1,187	3	419
Colquhoun.....	"	"	601	4			1	228
Lamarche.....	"	"	2,074	13			5	798½
Casgrain.....	Cochrane.....	John Breshahan, Hearst...	2,332	16	4	718	4	583
Devitt.....	"	"	5,130	34	10	1,479		
Eilber.....	"	"	3,767	25	8	1,188	1	145
Hanlan.....	"	"	4,096	27	20	3,086	5	743
Kendall.....	"	"	4,106	35	26	3,833	11	1,603
Lowther.....	"	"	4,297	30	19	2,907		
O'Brien.....	Cochrane.....	H. E. Sheppard, Kapuskasing...	1,680	18	14	1,338	2	173
Owens.....	"	"	5,138	52	9	887		
Williamson.....	"	"	3,151	34	5	459		
Nansen.....	"	"	1,494	10	3	450		
Iddington.....	"	"	4,690	49	1	100		
McCrae.....	"	"	4,348	29				
Bayley.....	Timiskaming...	Joseph Woollings, Englehart...						
Blain.....	"	"						
Chamberlain.....	"	"	190	2	1	158½		
Dack.....	"	"					4	635½
Davidson.....	"	"	320	2				
Eby.....	"	"	1,440	9	1	160	3	119½
Evanturel.....	"	"	2	1	1	160	7	973½
Gross.....	"	"	159	1				
Ingram.....	"	"	320	2	2	322	3	471
Marter.....	"	"	480	3	4	630½	3	389½
Marquis.....	"	"	457	3	2	306½	3	421
Otto.....	"	"	469	3	2	307½		
Pacaud.....	"	"	1,440	9	2	482	4	279½
Pense.....	"	"	321	2		661	1	160
Robillard.....	"	"	155	1			6	747
Savard.....	"	"	798	5	4	638½	1	157½
Sharpe.....	"	"	316	2	2	320	1	160
Truax.....	"	"	315	2	1	116½		
Catharine.....	"	"	488	3				

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Benoit	Timiskaming...	J. E. Mills, Matheson...	1,953	13	6	954	3	341
Beatty	Cochrane	"	191	2	.....	.....	8	1,015
Bond	"	"	292	3	6	923	.....	.....
Bowman	"	"	160	1	2	320	1	156
Calvert	"	"	474	3	3	461	9	1,346
Carr .....	" .....	" .....	.....	.....	.....	.....	6	839
Clergue	"	"	1,270	8	2	318	9	1,288
Currie	"	"	3,556	23	13	2,012	1	159
Dundonald	"	"	1,137	9	6	865	2	80
Evelyn	"	"	477	3	3	480	.....	.....
German	"	"	667	5	6	1,043	3	387
Hislop	"	"	499	3	2	310	14	2,236
Matheson	"	"	2,120	14	4	640	1	144
Mountjoy	"	"	860	11	4	528	8	571
McCart	"	"	1,856	13	11	1,674	2	318
Playfair	"	"	1,281	8	5	786	9	1,168
Stock	"	"	1,734	11	3	476	5	458
Taylor	"	"	317	2	2	318	13	1,577
Walker	"	"	154	1	2	314	6	937
Armstrong	Timiskaming...	J. R. McCrea, New Liskeard .....	.....	.....	.....	.....	5	634
Auld	"	"	159	1	1	160	.....	.....
Beauchamp .....	" .....	" .....	.....	.....	.....	.....	4	628
Brethour .....	" .....	" .....	.....	.....	1	160	3	242
Bryce	"	"	478	3	3	480	2	319
Bucke .....	" .....	" .....	.....	.....	.....	.....	1	86
Cane	"	"	161	1	3	390	5	647
Casey .....	" .....	" .....	.....	.....	.....	.....	2	280
Dymond .....	" .....	" .....	.....	.....	.....	.....	.....	.....
Firstbrook	"	"	318	2	4	608	2	213
Harley .....	" .....	" .....	.....	.....	1	160	7	920
Henwood	"	"	163	1	2	322	4	644
Harris	"	"	100	1	1	200	1	100
Hilliard .....	" .....	" .....	.....	.....	1	159	10	1,098
Hudson	"	"	316	3	2	302	1	160
Kerns .....	" .....	" .....	.....	.....	.....	.....	5	791
Lundy	"	"	335	2	1	168	.....	.....
Tudhope	"	"	164	1	3	484	1	160
Smyth	Timiskaming...	Mark Morgan, Elk Lake .....	.....	.....	.....	.....	1	160
Lorrain	Timiskaming...	Neil J. McAulay, Haileybury	641	4	3	429	8	643
Mason	Nipissing	J. P. Marchildon, Sturgeon Falls .....	.....	.....	1	161	4	169
Scollard	"	"	4	1	.....	.....	.....	.....
Hugel	Nipissing	John Brown, Markstay	160	1	1	161	1	160
Louden	"	"	200	1	.....	.....	.....	.....
Loughrin	"	"	3	2	2	324	.....	.....
Phelps	Nipissing	W. J. Parsons, North Bay	3,363	21	9	1,440	.....	.....
Widdifield	"	"	400	4	12	1,809	5	480
Hallam	Sudbury	R. A. Teasdale, Massey	336	2	.....	.....	1	160

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
May	Sudbury	R. A. Teasdale,	160	1				
Salter	"	Massey	276	2			1	120
Shedden	"	"	224	1				
Victoria	"	"	297	3			2	231
Bigwood	Sudbury	J. K. MacLennan,						
		Sudbury	170	3			6	329
Delamere	"	"	144	1				
Dowling	"	"	158	1	1	165	2	276
Nairn	Sudbury	E. Arthurs,						
		Espanola	158	1				
Drayton	Kenora	H. E. Holland,						
		Kenora	609	7	2	319	3	162
Jaffray	"	"	175	1			2	275
Watten	Rainy River	C. J. Holland,						
		Fort Frances			4	232	6	170
Bright	Algoma	Thomas Dodds,						
		Thessalon	314	2			1	81
Day	"	"	160	1				
Parkinson	"	"	158	1	2	320	1	158
Striker	"	"	287	3			2	126
Thompson	"	"	160	1				
Johnson	"	"	133	1				
Kirkwood	"	"			1	147		
Gould	"	"			2	283	1	320
Aweres	Algoma	T. Dean,						
		Sault Ste. Marie	157	2	1	160	1	2
Prince	"	"					3	431
Tarbutt, Add'l.	"	"						
Vankoughnet	"	"	150	1	1	160	1	150
Forbes	Thunder Bay	S. H. Wilson,						
		Port Arthur	5,843	36	7	1,142	4	606
Fowler	"	"	1,904	12			1	3
Goldie	"	"	1,177	7				
Jacques	"	"	5,160	34				
Lyon	"	"	558	4	2	320	1	164
McTavish	"	"	555	4			1	191
Nipigon	"	"	290	2	2	286	6	956
Sibley	"	"	2,091	13				
Upsala	"	"	3,955	27	10	1,495		
Alnwick	Northumber- land	Unattached	40	1			1	40
Adamston	Renfrew	"	243	3	1	94	4	344
Anglesea	Lennox and Addington	"	101	5			1	4
Bagot	Renfrew	"	393	5	1	175	2	300
Badgerow	Nipissing	"	153	1			1	160
Barrie	Frontenac	"	100	1			1	100
Bruce	Bruce	"	121	2			1	111
Burwash	Sudbury	"	166	1				
Burleigh South	Peterborough	"	88	1	1	88	2	105
Bathurst	Lanark	"	83	1				

Appendix No. 14—Continued

Township.	District or County.	Agent.	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Burk.....	Kenora.....	Unattached.....	22	1			1	6
Charlottetville..	Norfolk.....	"					1	10
Crosby.....	Leeds.....	"		1				
Creighton.....	Sudbury.....	"	161	1				
Dummer.....	Peterborough..	"	100	1				
Drury.....	Sudbury.....	"	457	3			2	282
Deroche.....	Algoma.....	"	160	1				
Egremont.....	Grey.....	"	41	1			1	95
Fairbanks.....	Sudbury.....	"	170	2	1	125	1	170
Falconer.....	Nipissing.....	"	150	1			1	149
Field.....	"	"	352	3	1	159	4	354
Gibbons.....	"	"	329	3			4	452
Graham.....	Sudbury.....	"	63	1				
Hartman.....	Kenora.....	"	8	1				
Horton.....	Renfrew.....	"	100	1			1	100
Holmes.....	Timiskaming..	"	29½	3				
Hinchinbrooke..	Frontenac.....	"			1	200		
Hoyle.....	Cochrane.....	"	8	1				
Harvey.....	Peterborough..	"	81	1	1	206	2	351
Kennebec.....	Frontenac.....	"	301	4			4	208
Kendry.....	Timiskaming..	"			7	1,019		
Kaladar.....	Lennox and Addington...	"	180	1	1	137	2	397
Kapuskasing.....	Algoma.....	"	965	1				
Louise.....	Sudbury.....	"	82	1			2	241
Lansdowne.....	Algoma.....	"	200	1			2	15
Laxton.....	Victoria.....	"	96	1			2	190
Ledger.....	Thunder Bay..	"	160	1				
Lorne.....	Sudbury.....	"	742	6			7	894
Lavant.....	Lanark.....	"	200	2				
Matchedash.....	Simcoe.....	"	100	1	1	200	8	117
Madoc.....	Hastings.....	"	50	1				
Marmora.....	"	"	100	2			1	50
Olden.....	Frontenac.....	"	203	1			3	245
Proton.....	Grey.....	"					1	99
Somerville.....	Victoria.....	"	156	1			1	100
Sandwich East..	Essex.....	"	86	6			6	95
Seymour.....	Northumber- land.....	"	200	1				
Tisdale.....	Timiskaming..	"	322	2				
Trill.....	Sudbury.....	"	129	1			1	129
Tudor.....	Hastings.....	"	100	1	1	131	1	75
Wilberforce.....	Renfrew.....	"	100	1			1	110
Whitney.....	Timiskaming..	"	3	1	3	163		
Waters.....	Sudbury.....	"	81	1				
Total.....			165,184	1204	507	74,773	399	49,471

Number of lots assigned.....552 Number of acres assigned.....73,903

Appendix No. 14—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane	Matheson	21	8
"	Cochrane	53	0
"	Hearst	9	9
"	Kapuskasing	14	38
Algoma	Thessalon	2	5
"	Sault Ste. Marie	1	5
Timiskaming	Englehart	7	5
"	Elk Lake	1	0
"	New Liskeard	4	0
Sudbury	Unattached	6	0
"	Markstay	3	1
Nipissing	North Bay	4	5
Thunder Bay	Port Arthur	6	0
		131	76

Appendix No. 14—Continued

Statement showing the number of purchasers, acres sold and of patents issued in Townsites, during the year ending 31st October, 1924.

Townsite.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of patents issued.	No. of acres patented.
Alexandra	Cochrane	Unattached	2.62	8	3	1.12
Bobcaygeon	Victoria	"	1.50	3	2	1.00
Capreol	Sudbury	"	.48	3	6	.65
Dryden	Kenora	"	.50	1	2	.50
Dryden, Additional	Kenora	"	.25	1		
Foleyct	Sudbury	"	.92	3	1	.06
Gowanda	Timiskaming	"	.36	2		
Hearst	Cochrane	"	1.90	7	4	4.75
Hilton	Algoma	"	1.00	2	1	1.00
Hornepayne	Algoma	"	.85	5	2	.29
Iroquois Falls	Timiskaming	"	.21	1	1	.21
Kapuskasing	Cochrane	H. E. Sheppard	8.38	55	11	1.81
Kirkland Lake	Timiskaming	Unattached	4.74	31	11	4.78
Larder City	Timiskaming	"	.07	1	1	.07
Low Bush River	Cochrane	"	.43	2		
Macfarlane	Kenora	"	4.93	15	6	3.07
Missanabie	Algoma	"	4.77	31	9	1.70
Nakina	Thunder Bay	"	4.03	24	5	1.05
Pembroke	Renfrew	"	.24	1		
Penetanguishene	Simcoe	"	.50	1	1	.50
Sioux Lookout	Kenora	"	2.20	10	4	1.56
Swastika	Timiskaming	W. G. A. Wood	.26	2	1	.21
Timmins, Additional	Timiskaming	W. G. A. Wood	1.10	20		
Winnipeg River Crossing	Kenora	Unattached	13.78	8	2	1.00
			56.02	237	73	25.33

Appendix No. 14—Continued

Statement showing islands and parcels sold as summer resorts.

ISLANDS SOLD

Part or Parcel	Township	District or County	Agent	No. of Acres Sold
Kawartha Island, Lake Nipissing.....	Nipissing.....	Parry Sound.....	I. M. Campbell....	1.2
Birch Island in Three-Mile Lake.....	Armour.....	" ".....	".....	.50
Oak Island in Horse-shoe Lake.....	Foley.....	" ".....	".....	.50
Twin Island in Lake Nipissing.....	Nipissing.....	" ".....	H. J. Ellis.....	.10
Prospect Island in Maple Lake.....	Christie.....	" ".....	".....	5.
Parcel 1, Island 188....	Baxter.....	Muskoka.....	W. G. Gerhart.....	1.7
Parcel 3, Island 188....	".....	".....	".....	.5
Parcel 3, Island 133....	".....	".....	".....	5.
Parcel 1, Island 133....	".....	".....	".....	4.8
Opal Island in Skelton Lake.....	Cardwell.....	".....	".....	3.5
Island in Island Lake..	Aweres.....	Algoma.....	Thos. Dean.....	1.
Parcel 35, Pine Island, St. Marys River....	.....	".....	Unattached.....	2.4
Parcel 34, Pine Island, St. Marys River....	.....	".....	".....	3.6
Parcel 10, Pine Island, St. Mary's River....	.....	".....	".....	3.3
Island 22, St. Joseph's Channel.....	.....	".....	".....	2.
Island F. P. 44, Abrams Lake.....	Drayton.....	Kenora.....	".....	4.25
Island B, Otter Lake..	Ashby.....	Lennox and Addington.....	".....	.18
Cameron Island, Wesslemcoon Lake.....	Effingham.....	Lennox and Addington.....	".....	.10
Part Island C, French River.....	Mason.....	Nipissing.....	J. P. Marchildon...	5.
Part Island C, French River.....	".....	".....	".....	2.5
Island A 8, French River.....	Scollard.....	".....	".....	4.
Island N, French River	Mason.....	".....	".....	1.
Island O, Trout Lake..	Palmerston.....	Frontenac.....	Unattached.....	1.
Little Rock Island....	Chandos.....	Peterboro.....	Wm. Hales.....	1.
Quality Island, Loon Lake.....	".....	".....	".....	.95
Stephen Island in Pike Lake.....	North Burgess....	Lanark.....	Unattached.....	1.09
Boot Island, Otty Lake	North Elmsley....	Leeds.....	".....	.80

Appendix No. 14—Continued

MAINLAND SOLD

Part or Parcel	Township	District or County	Agent	No. of Acres Sold
S.E. part lot 11, Con. 18	Nipissing.....	Parry Sound.....	I. M. Campbell.....	4.
Part lot 10, con. 10....	Patterson.....	".....	".....	1.
Part lot 11, con. 19....	Nipissing.....	".....	".....	4.
Part broken lot 30, con. 17.	Wood.....	".....	".....	1.30
Part broken lot 2, con. 3	Bigwood.....	".....	".....	5.
Part lot 29, con. 6.....	Burton.....	".....	".....	3.
Part broken lot 34, con. 13.	".....	".....	".....	2.
Part lot 33, con. 14....	".....	".....	".....	1.15
Part broken lot 23, con. 1.	Wallbridge.....	".....	".....	3.50
Part broken lot 13, con. 15.	Nipissing.....	".....	".....	1.
Part broken lot 2, con. 3	Bigwood.....	".....	J. K. MacLennan....	.75
Part broken lot 13, con. 15.	Nipissing.....	".....	I. M. Campbell.....	1.
Part broken lot 2, con. 2	Bigwood.....	".....	".....	5.
Part broken lot 9, con. 12.	Wilson.....	".....	".....	5.
Part broken lot 5, con. 10.	Patterson.....	".....	".....	5.
Part broken lot 3, con. 2	Bigwood.....	Sudbury.....	J. K. MacLennan....	4.
Parcel 1, C.P.R. Crossing, French River...	Mowat.....	Parry Sound.....	I. M. Campbell.....	.1
Parcel 2, C.P.R. Crossing, French River...	".....	".....	".....	.22
Parcel 22, C.P.R. Crossing, French River...	".....	".....	".....	.36
Parcel 3, C.P.R. Crossing, French River...	".....	".....	".....	.18
Parcel 21, C.P.R. Crossing, French River...	".....	".....	".....	9.22
Parcel 20, C.P.R. Crossing, French River...	".....	".....	".....	.14
Part broken lot 48, con. 5.	Gibson.....	".....	".....	1.
Part broken lot 9, con. 10.	Patterson.....	".....	".....	3.75
Part lots 18 and 19, con. 11.	Baxter.....	Muskoka.....	W. G. Gerhart.....	10.
Lot 6, sub. lots 28 and 29, con. 8.....	Wood.....	".....	".....	.18
Part broken lot 31, con. 14.	".....	".....	".....	1.
Part broken lot 30, con. 17.	".....	".....	".....	1.30
Lot 10, sub. lots 28 and 29, con. 8.....	".....	".....	".....	26.01
Part lot 1, con. 1.....	Striker.....	Algoma.....	Thos. Dean.....	3.
Part lot 6, con. 1.....	".....	".....	".....	8.4
Part broken lot 5, con. 6	Malachi.....	Kenora.....	J. E. Gibson.....	6.5
Part broken lot 5, con. 6	".....	".....	".....	1.
Part broken lot 5, con. 6	".....	".....	".....	.90
Part broken lot 5, con. 6	".....	".....	".....	3.78
Part broken lot 5, con. 6	".....	".....	".....	1.74
Part lot 35, con. 7.....	McKenzie.....	Parry Sound.....	I. M. Campbell.....	.....
Part lots 23 and 24, con. B.	South Crosby....	Leeds.....	Unattached.....	9.23
Part broken lot 24, con. B, M.C. 12.....	Drayton.....	Kenora.....	".....	4.5
Part broken lot 25, con. C.....	".....	".....	".....	7.
Part broken lot 21, con. 1, M.C. 3.....	".....	".....	".....	5.

Appendix No. 14—Continued

Part or Parcel	Township	District or County	Agent	No. of Acres Sold
M.C. 3.....	Drayton	Kenora	Unattached	1.
Part broken lot 17, con. 3.....	"	"	"	3.65
Lot 1, range 6, Drayton Reserve.....	"	"	"	6.12
Lot 4, range 6, Drayton Reserve.....	"	"	"	7.7
Part broken lot 22, con. 1.....	Ashby.....	Lennox and Add- ington.....	"	5.
Part broken lot 25, con. 15.....	Effingham.....	Lennox and Add- ington.....	"	3.
Part broken lot 27, con. 16.....	"	Lennox and Add- ington.....	"	5.
Part broken lot 25, con. 16.....	"	Lennox and Add- ington.....	"	3.25
Part broken lot 25, con. 16.....	"	Lennox and Add- ington.....	"	4.4
Part broken lot 25, con. 15.....	"	Lennox and Add- ington.....	"	3.1
Parts broken lots 11 and 12, con. 8.....	Buchanan.....	Renfrew.....	Findlay Watt.....	2.42
Part broken lot 10, con. 3.....	Hudson.....	Timiskaming.....	J. R. McCrea.....	5.
Part broken lot 4, con. 10.....	Anglesea.....	Addington	Unattached	5.
Part broken lot 5, con. 10.....	" .....	" .....	" .....	.86
Part broken lot 5, con. 10.....	"	"	"	1.
Part broken lot 6, con. 10.....	" .....	" .....	" .....	.8
Part broken lot 6, con. 10.....	"	"	"	1.6
Part lot 2, con. 10.....	Stanhope.....	Haliburton.....	R. H. Baker.....	3.1
Part lot 2, con. 10.....	"	"	"	1.9
South part broken lot 28, con. 3.....	Shrebourne.....	"	W. G. Gerhart.....	2.3
				274.83

Appendix No. 14—Continued

ISLANDS PATENTED

Statement showing Islands and parts of lots patented as summer resorts

Part or Parcel	Township	District or County	Agent	No. of Acres Patented
Part of lot 11, con. 2..	Wallbridge	Parry Sound.....	I. M. Campbell....	5.
Part of lot 12, con. 2..	"	"	"	5.
Island B	Cowper	"	"	4.
Island B or Banana Island	Conger	"	"	1.70
A small island south of 1A, Big Island Lake Rosseau	Medora	Muskoka	W. G. Gerhart .....	.37
Kawartha Island, South Bay, Lake Nipissing.	Nipissing	Nipissing	H. J. Ellis	1.20
Island 133, Gloucester Pool	Baxter	Muskoka	W. G. Gerhart	5.
Parcel 1, Island 188, Severn River	"	"	"	1.70
Part of lot 12, con. 5..	Wallbridge	Parry Sound.....	I. M. Campbell....	5.
Island B 611	Cowper	"	"	1.40
Part of lot 12, con. 5..	Wallbridge	"	"	4.70
Island B 722	Cowper	"	"	1.30
Island B 407	"	"	"	3.50
Part of lot 11, con. 5..	Wallbridge .....	" .....	" .....	.30
Island T.P. 3472, at the mouth of the French River	"	"	Unattached	12.
Island K.G. 9002	"	"	"	6.
Part lot 5, con. 5	Redditt	Kenora	"	3.85
Island H, Maskinonge Lake	Kelly	Sudbury	"	3.
Part of lot 3, con. 3	Cox	"	"	1.40
Waba Island, White Lake	Darling	Lanark	"	2.
Part of lot 4, con. 3	Cox	Sudbury	"	3.10
Cameron Island, Wesslemcoon Lake	Effingham	Lennox and Addington .....	" .....	.10
				71.62

Appendix No. 15

REPORT OF THE DIRECTOR OF SURVEYS

HONOURABLE JAMES LYONS,

Minister of Lands and Forests, Ontario.

Sir,—The survey work carried on under direction of this Department during the past year was considerably limited as compared with the work in former years, and consisted only of 900 miles of lake and river traverse and subdivision of three townships together with miscellaneous smaller surveys wherever occasion required.

Instructions issued and work was carried on as follows:

TOWNSHIP SUBDIVISIONS

Township of Goldie, district of Thunder Bay, surveyed by Phillips & Benner, Ontario Land Surveyors, Port Arthur.

Township of Rowe, district of Rainy River, surveyed by Speight & vanNostrand, Ontario Land Surveyors, Toronto.

Part of the township of Wicksteed, district of Algoma, surveyed by Lang & Ross, Ontario Land Surveyors, Sault Ste. Marie.

Resurvey northern part of the township of Sibley, district of Thunder Bay, by R. S. Kirkup, Ontario Land Surveyor, Port Arthur.

LAKE AND RIVER TRAVERSE

English River, district of Kenora (westerly part), by James S. Dobie, Ontario Land Surveyor, Thessalon.

Little Current River head waters, district of Thunder Bay, C. R. Kenny, Ontario Land Surveyor, Sault Ste. Marie.

Drowning River and head waters, district of Cochrane, T. J. Patten, Ontario Land Surveyor, Little Current.

TIMBER BERTH SURVEYS

Timber berth "E," Otter Tail Creek, district of Nipissing, L. Mooney, Ontario Land Surveyor, Sudbury.

MISCELLANEOUS SURVEYS

Subdivision of park lots near Sioux Lookout, township of Drayton, district of Kenora, Phillips & Benner, Ontario Land Surveyors, Port Arthur.

Subdivision Port Macdiarmid, district of Thunder Bay, G. L. Ramsey, Ontario Land Surveyor, Sault Ste. Marie.

Subdivision Island Falls Junction, district of Cochrane, John Lanning, Ontario Land Surveyor, Cochrane.

Subdivision addition to Hornepayne townsite, district of Algoma, Lang & Ross, Ontario Land Surveyors, Sault Ste. Marie.

Subdivision of summer resort lots on French River and Severn River, districts of Parry Sound and Muskoka, C. E. Fitton, Ontario Land Surveyor, Toronto.

Surveyor of summer resort lots on Trout Lake, district of Thunder Bay, Phillips & Benner, Ontario Land Surveyors, Port Arthur.

Survey of summer resort lots on Trout Lake, township of Widdifield, district of Nipissing, McAuslan, Anderson & Moore, Ontario Land Surveyors, North Bay.

Resurvey St. Anthony Lake, township of Skead, district of Timiskaming, T. G. Code, Ontario Land Surveyor, Cobalt.

Town plot subdivisions of lands patented since 1910 have been approved of pursuant to R.S.O. 1910, chapter 34, and amendments, as follows:

Part of north half of lot 2, concession 4, township of Calvert, district of Cochrane (Ansonville, Alphonse Tardiff subdivision).

Part of mining claim T C 711, township of Teck, district of Timiskaming, Kirkland Lake addition (Wright-Hargreaves Mines, Limited).

Part of south half lot 12, concession 3, township of Tisdale, district of Cochrane, addition to Timmins (J. P. Bartleman et al).

Part of lot 5, concession 9, township of Kendall, district of Cochrane (Hallewood, N. Darby).

Extracts from the reports of the several surveyors employed during the year denoting the physical features of the country traversed will be found in appendices 20 to 36 inclusive.

L. V. RORKE,
Director of Surveys.

Appendix No. 16

Statement of Municipal Surveys confirmed during the twelve months ending
October 31st, 1924.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes, 1920, chap. 48, sec. 18.
1	George Ross.....	718	July 8, 1918	Survey side line road allowance between lots 8 and 9 through the whole breadth of the township of Crowland in the county of Welland, and also the side road allowance between lots 16 and 17, across the 6th concession of said township.....	Mar. 3, 1924
2	A. L. Nash.....	738	Dec. 10, 1923	Survey road allowance between the 9th and 10th concessions of the township of North Dumfries, in county of Waterloo, extending easterly from what is known as Sprague's Road to the Grand River	June 12, 1924
3	Roger M. Lee.....	734	June 2, 1923	Survey that part of the city of Brantford in the county of Brant, lying between the westerly side of Rawdon St., and the centre line of Stanley St., and between the southerly side of Colborne St., and the lands of the corporation of the city of Brantford on the north....	Dec. 10, 1923
4	C. H. Wilkins.....	740	July 29, 1924	To survey the road allowance in front of the 4th concession, across lots 11 to 16 inclusive, township of Sidney, county of Hastings.....	Oct. 29, 1924
5	Speight & van- Nostrand.	736	Aug. 22, 1923	To survey the street known as Spadina Crescent, in the city of Toronto, in the county of York, as shown on registered plan D 33.....	Mar. 19, 1924

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1924.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey
1	F. N. Rutherford...	739	June 12, 1924	Survey the original road allowance between the townships of Louth and Pelham across lots 7 to 10 inclusive in the township of Louth, county of Lincoln.
2	C. H. Wilkins.....	740	July 29, 1924	Survey the road allowance in front of the 4th concession across lots 11 to 16 inclusive, township of Sidney, county of Hastings.
3	Speight & van- Nostrand.	741	Sept. 2, 1924	Survey the original road allowance between lots 10 and 11, across concessions 7 and 8, in the township of Toronto Gore.

Appendix No. 18

Statement of Crown Surveys in progress during the twelve months ending October 31, 1924.

No	Date of Instructions	Name of Surveyor	Description of Survey	Amount
1	March 31, 1924	C. R. Kenny.....	Traverse of Little Current River in district of Thunder Bay.....	\$4,750 00
2	March 27, 1924	T. J. Patten.....	Traverse of Drowning River and head water lakes, district of Cochrane.....	3,600 00
3	April 24, 1924	J. S. Dobie.....	To complete the traverse of the English River, etc., districts of Kenora and Patricia.....	7,500 00
				<u>\$15,850 00</u>

Appendix No. 19

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1924.

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	May 31, 1923	G. P. Angus.....	Survey of the west part of Thorning, district of Cochrane.....	\$1,876 05
2	April 15, 1923	H. J. Beatty.....	Survey certain township outlines in the district of Algoma, west of A.C.Ry....	2,566 32
3	April 9, 1923	J. T. Coltham.....	Traverse survey of Kabinakagami Lake and Kabinakagami River, district of Cochrane and Algoma.....	3,420 00
4	April 8, 1923	T. G. Code.....	Traverse part of Kabinakagami and Kenogami River, district of Cochrane..	735 86
5	April 8, 1923	J. S. Dobie.....	Traverse of part of English River and islands, districts of Kenora and Patricia.....	4,160 00
6	April 15, 1923	J. W. Fitzgerald....	Survey certain township outlines south of C.P.R., district of Sudbury.....	2,052 47
7	Aug. 30, 1923	J. W. Fitzgerald....	Survey of timber lines in township 9 Z, district of Sudbury.....	495 26
8	April 5, 1923	D. J. Gillon.....	Traverse of the Seine River, district of Rainy River.....	2,203 38
9	April 5, 1923	C. V. Gallagher....	Survey certain township outlines along the C.P.R., district of Sudbury.....	2,045 44
10	April 15, 1923	C. R. Kenny.....	Traverse of Moose River, district of Cochrane.....	2,104 50
11	April 10, 1923	R. S. Kirkup.....	Traverse shores of Minnitaki Lake, district of Kenora.....	4,530 00
12	June 1, 1923	T. J. Patten.....	Survey of township Mongowin, in district of Sudbury.....	1,373 00
13	April 15, 1923	K. G. Ross.....	Base and meridian lines in district of Thunder Bay.....	2,384 58
14	May 16, 1923	G. F. Summers.....	Survey addition town plot Alexandra, district of Cochrane.....	26 30
15	Aug. 30, 1923	Sutcliffe & Neelands..	Survey timber lines in the township of Kitson and east Brigstocke, district of Timiskaming.....	401 47
16	April 15, 1923	Sutcliffe & Neelands..	Survey certain township outlines east of the Abitibi River, district of Cochrane..	1,811 25
17	June 18, 1923	C. H. Wilkins.....	Resurvey of shores of Canoe and Smoke Lakes.....	1,398 90
18	April 15, 1923	McAuslan, Anderson & Moore.	Survey certain township outlines along C.P.R., district of Sudbury.....	2,055 00
19	Oct. 16, 1923	G. P. Angus.....	Readjustment survey, part of the township of Blount.....	1,057 25

Appendix No 19—Continued

No	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
20	June 7, 1923	Alex. Matheson.....	Survey of lots at Pearl Beach townsite, township of McVittie.....	\$1,288 90
21	May 30, 1923	John L. Lang.....	Inspection of lakes for storage purposes, districts of Nipissing and Sudbury....	704 21
22	June 7, 1923	J. L. Morris.....	Survey certain lots in township Murchison	329 35
23	April 30, 1923	C. E. Fitton.....	Subdivision survey of islands 137, 145, 188, 133, in Severn River, district of Muskoka.....	237 30
24	Dec. 11, 1923	Phillips & Benner....	Subdivision of reserve in township of Drayton, district of Kenora.....	1,435 93
25	Dec. 12, 1923	L. Mooney.....	Survey of timber lines, timber berth E, on Otter Tail Creek, district of Nipissing.....	254 49
26	.....	Baines & David.....	Iron posts for surveys.....	230 00
27	Dec. 5, 1923	C. E. Fitton.....	Subdivision of lands on French River....	153 20
28	Aug. 13, 1923	H. J. Beatty.....	Survey of limit line between Gillies Bros., and Hawkesbury Lumber Co., district of Nipissing.....	687 16
29	Jan. 9, 1924	T. G. Code.....	Traverse St. Anthony Lake, township of Skead.....	815 95
30	Dec. 14, 1923	A. Graham.....	Services, city of Brantford survey.....	2 00
31	Mar. 11, 1924	R. S. Kirkup.....	Re survey part of township of Sibley, district of Thunder Bay.....	2,366 90
32	Mar. 19, 1924	Phillips & Benner....	Survey of township of Goldie, district of Thunder Bay.....	4,376 40
33	Mar. 25, 1924	G. L. Ramsey.....	Survey village of Port Macdiarmid, district of Thunder Bay.....	1,108 96
34	April 10, 1924	Phillips & Benner....	Cottage sites on Trout Lake township Gorham, Thunder Bay.....	674 25
35	Mar. 27, 1924	Lang & Ross.....	Survey part township Wicksteed, district of Algoma.....	2,631 65
36	Mar. 28, 1924	Phillips & Benner....	Setting gauges on Shebandowan and Kashabowie Lakes, district Thunder Bay.....	78 05
37	June 22, 1924	A. G. Ardagh.....	Re survey township Sunnidale, county of Simcoe.....	641 60
38	June 16, 1924	C. E. Fitton.....	Survey of islands in Severn River.....	593 28
39	April 16, 1924	McAuslan & Anderson.	Survey of summer cottage sites along shore of Trout Lake, township of Widdifield, district of Nipissing.....	1,178 15
40	June 12, 1924	John Lanning.....	Survey of subdivision island Falls Junction, district of Cochrane.....	655 75

Appendix No. 19—Continued

No	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
41	April 3, 1924	Lang & Ross.....	Survey of subdivision town lots at Hornepayne, district Algoma.....	\$352 50
42	June 17, 1924	L. Mooney.....	Services June 18 to 24, inspection at Bisco, of lake levels.....	140 50
43	July 22, 1924	C. E. Fitton.....	Inspection of surveys, 1924.....	2,476 26
44	Mar. 21, 1924	Speight & van- Nostrand.	Survey township of Rowe, in district Rainy River.....	4,276 00
45	.....	Bank of Montreal....	Wire to Sault Ste. Marie, re C. R. Kenny survey.....	63
				<u>\$64,386 31</u>

Appendix No. 20

Extract from O.L.S. Lang & Ross' report, subdivision part of township of Wicksteed, Algoma, dated Sault Ste. Marie, September 12th, 1924.

"The part of this township surveyed by us is in general rolling land and sandy or sandy clay soil. In the northerly part there are rocky hills ranging to one hundred feet in height. The rock exposures are gneiss and schist. No indications of valuable mineral were observed.

"The timber in general is second growth spruce, poplar, balsam and jack pine up to eight inches in diameter. There are, however, 200 or 300 acres of heavy mixed growth up to twenty-four inches in diameter.

"Moose are fairly plentiful, and one caribou was seen."

Appendix No. 21

Extract from O.L.S. G. P. Angus' report on west part of township of Thorning, district of Cochrane, dated September 15th, 1924.

"The country is flats, timbered with spruce up to eight inches diameter, and clay ridges timbered with spruce, poplar, birch and balsam up to fifteen inches diameter.

"The flats are covered with a heavy moss of about one foot in depth, with black muck under of ten or twelve inches, and clay sub-soil, and will make good agricultural land after the present crop of valuable pulp timber is taken off and the land is drained.

"Some years ago the country was burnt in patches in a great number of places and is now covered with a growth of spruce and poplar of two or three inches in diameter.

"There are four outcrops of granite rock at the following locations:

"First—In the railway cut at Mileage 20½ on the Timiskaming and Northern Ontario Railway on lot 24, concession 2.

"Second—On the south boundary of lot 16, concession 1, about four chains west of Chin River.

"Third—On the easterly limit of lot 25, concession 12, at one half mile south of the north boundary.

"Fourth—On the side road between lots 18 and 19, concession 12, one-eighth of a mile south of the north boundary."

Appendix No. 22

Extract from O.L.S. E. L. Moore's report on subdivision lot 22, concession 17, township of Ferris, Nipissing, dated North Bay, November 8th, 1924.

"As shown on the plan accompanying this report, the lots range in area from one half of an acre to nearly five acres. Lots 2, 3, 4 and 5, are particularly desirable while the other lots are more or less rough. Lot 9 comprises a rock point which commands a fine view of the lake and for this reason is more desirable than some of the others.

"Cedar posts, three inches square, were planted to mark the various angles of the lots, and in all cases were marked and mounded well with stones. The iron posts which were supplied were marked and planted as indicated on the plan. In all cases these were planted on the northerly side of the wooden post."

Appendix No. 23

Extract from O.L.S. R. S. Kirkup's report on certain concessions in township of Sibley, Thunder Bay, dated Port Arthur, August, 1924.

"The soil is clay loam and clay, very rocky in the western half of the township and swampy in the southeastern portion, so that really until the swamps are cleaned up the only available arable land lies in the northeastern section of the township.

"There is quite a quantity of timber left in the southeastern section which I believe the Provincial Pulp and Paper Company will probably have cleared up by next year.

WATER POWER

"The portion of Sibley township which I resurveyed lies practically all within the watershed of Portage Creek, which flows down through the centre to Black Bay, being fed by numerous small creeks en route. The Provincial Pulp and Paper Company have an impounding dam located on section three in concession 2, and this, when closed, backs up the water for over two miles. In fact, I was unable to proceed with two of my lines until I had obtained permission to let the water go. Below the dam it is fairly rapid and shallow, with a small falls which is of no consequence as a water power. The old dam shown on the plan is in a state of disrepair and is not used any more. Iron bars were planted with pits and mounds at the points indicated on the accompanying plan, with the exception of the one at the northwest angle of the township and one on the third concession line, witnessing the post between sections 4 and 5, and here the nature of the ground was so rocky, that I was unable to make the pits in the prescribed matter, but planted the posts in cairns of stones.

"While traversing the shores of Black Bay, I had the novel sensation of being chased by a crazy woman with a very formidable pike pole. In fact, she came so near to smashing up my transit that it was not really much of a joke at the time. She was living in one of the old lumber camps at the outlet of Portage Creek, but I have since learned that she has been removed to a place of safety. I completed the survey on the 21st day of June, and returned with my party to Port Arthur."

Appendix-No. 24

Extract from O.L.S. C. E. Fitton's report on subdivision of Horseshoe Island, township of Baxter, Muskoka, dated Toronto, July, 1924.

"After examining the island I found it would divide into five parcels giving a good boat landing and place for a house on each parcel. I also subdivided the part of Burrows Island, known as island 22 on the original plan of the township of Baxter, north of the parcel lately surveyed by Fitton & Chase for James H. Wylie. The contour of the ground on the island was such that I judged it advisable to divide it into eleven parcels. Several of these parcels are not of much value, but the cost of survey was no more than if these had been omitted from the plan.

"I examined the point known as lot 20, concession 4, in the township of Baxter, and laid out six parcels that I thought suitable for summer resort purposes. Some of these parcels had signs marked 'private property' and I understand the parties either had or would send in applications for them in due course. I have prepared plans in duplicate in accordance with the Registry Act of these subdivisions and submit them herewith, also list of the several parcels of land giving the number and my valuation of the same."

Appendix No. 25

Extract from O.L.S. E. L. Moore's report summer cottage lots along shore of Trout Lake, township of Widdifield, Nipissing, dated North Bay, September 9th, 1924.

"I commenced the survey on the 9th of July, and upon inspection of the ground found a desirable area for cottage lots in the west part of lot 5, concession 'C.' The first step was to locate the west limit of lot 5 and after considerable searching I located the original bearing tree on the shore of the lake at the north end of this line from which I located the site of the original post between lot 5 and lot 8, concession 'C.' Retracing the line south, I had no difficulty in re-establishing it by the original blazes.

"From the west limit of lot 5, I began to lay off lots, but soon found that to do the work to the best advantage, it was necessary to make a shore traverse, project the lots on paper and then lay them out on the ground. This system was carried on throughout the survey. In this part of lot 5, I laid out lots 1 to 18, inclusive, and a few chains farther along the southwesterly shore of lot 5, I laid out lots 19, 20, 21 and 22. The balance of lot 5, in concession 'C' is mostly rough land and wholly burnt. Passing along to lot 4, concession 'C,' I found nothing suitable for lots on the south shore for about thirty-one chains east of the line between lots 4 and 5, there being no shade trees. Continuing from this point easterly I laid out the shore into lots, there being some very good locations, which condition continues along the north shore to within about twenty-seven chains from the west limit of township lot 4. The balance of lot 4 is too steep a hillside to be desirable. In lots 4 and 5 in concession 'B,' I found nothing suitable as the land back from the shore is a steep hillside running to a height of 500 and 600 feet, and has been burnt over, as is also the case in lot 3, concession 'C,' with the exception of one point in the southeast angle of lot 3, which has a good building site, plenty of small trees and a good beach, so I laid this out as lot 72.

"Between the land that I laid out as lots 11 and 18, I found a portage, and as it was much used, I laid off fifty links on either side of it for public used.

"Every angle of the lots were marked by a cedar post not less than three inches square, firmly driven in the ground and around most of these was built a stone mound. The posts planted to mark the front angles were set, in most cases, a little distance back from the high water mark in order to obtain a more permanent position for them. The position of these are shown in my field notes of the survey. The twenty iron posts which were supplied were marked and planted alongside of the wooden posts at intervals throughout the survey."

Appendix No. 26

Extract from O.L.S. Phillips & Benner's report of survey of cottage sites on Trout Lake, townships of Gorham and Ware, Thunder Bay, dated Port Arthur, July 10th, 1924.

"We consider this lake very desirable for camping purposes, and there should be very little difficulty in disposing of the lots. There are sandy beaches fronting on the greater number of the sites and these could be considerably improved by opening the dam at the outlet of the lake. This holds up about a foot of water at the present time and has not been used for some years.

"We consider the following lots to be the most desirable: Numbers 1, 10 to 22 inclusive, 27 to 30 inclusive, 36 to 40 inclusive, 42 to 46 inclusive, 55 to 58 inclusive and 60.

"The road from Port Arthur to the lake is in good condition to a point about two miles from the lake, and from here in it is very rough and will need considerable improvement for heavy traffic. The road shown in lot 1, concession 8, Ware, has been cut out and a small amount of improvement done on it as far as the line between lot 53 and the Reserve. This Reserve was left with the intention of it being used for parking purposes and for the erection of garages by the lot holders. We did not reserve any part of lots 53 and 54 for road purposes but this could be done if considered advisable."

Appendix No. 27

Extract from O.L.S. C. E. Fitton's report on islands in Gloucester Pool and Severn River, Muskoka, dated Toronto, July, 1924.

"I find that a good many of these islands that now exist formerly formed part of the main land and also that the islands originally known as numbers 14 and 22 shown on the original plan of the township of Baxter are now divided and shown as separate islands on this plan. The following is a list of these islands that I consider formerly formed part of the main land and also of those that originally formed part of islands 14 and 22.

"Islands Nos. 133, 137, 138, 146, 148, 153 and Beachwood were formerly part of lot 20, concession 4, township of Baxter.

"Island No. 149 was originally part of lot 21, concession 4, township of Baxter.

"Island No. 154 was originally part of lot 22, concession 4, township of Baxter.

"Islands Nos. 156-158 were originally part of lot 23, concession 4, township of Baxter.

"Island No. 114 was originally part of lots 20 and 21, concessions 5 and 6, township of Baxter.

"Islands 115, 116, 117, 118, 119 and 96 were all originally part of lot 20, concession 5, township of Baxter.

"Island 135 is part of lots 18 and 19, concession 1, township of Matchedash.

"Island No. 136 is part of lot 18, concession 1, township of Matchedash.

"The townline crosses island No. 191 (part of it is in lot 18, concession 1), township of Matchedash, and part in lot 18, concession 14, township of Tay.

"Islands Nos. 124, 125 and 128 are part of the west half of lot 21, concession 1, township of Matchedash.

"Island No. 190 is part of lots 18 and 19, concession 14, township of Tay.

"Island No. 139 is part of lot 19, concession 14, township of Tay.

"Island No. 189 is part of lot 19, concession 14, township of Tay.

"Islands Nos. 188, 141, 142, 143, 144, 145, 147, 150, 151, 152, 184 and 185, originally were all joined together and was known as island No. 14, and shown as such on the original plan of the township of Baxter.

"Island No. 121 and the island known as Broadview were originally part of island No. 22 or Burrows Island.

"Islands No. 188 and 133 and parts of islands Nos. 137 and 145 have been surveyed and plans made under former instructions."

Appendix No. 28

Extract from O.L.S. Speight & vanNostrand's report on survey of township of Rowe, Rainy River, dated Toronto, October 30th, 1924.

GENERAL FEATURES

"Topographically, the township of Rowe may be divided into two fairly distinct parts. The southwesterly part—including practically all of concession 1, most of the west half of concession 2 and 3, and part of the west half of concession 4, approximately a third of the township—is, generally speaking, level. A few low ridges of granite break through the soil, but seventy-five per cent. of this part of the township is probably fit for agricultural use. The soil is clay loam to sandy loam, and the general character of the land is very similar to that in township of Dewart to the west or Richardson to the south.

"The remainder of the township, to the north and east, is for the most part a succession of low granite ridges, or is rocky table land, varied in the northern part by stretches of muskeg of considerable extent.

"No streams of any importance enter the township. A number of small creeks in the south half unite to form the west branch of Split Rock River which leaves the township near the middle of the west boundary. No lakes were seen with the exception of a small muskeg lake in lot 2, concession 6.

"The whole township was swept by fire about forty years ago, and very little of the timber now growing has attained commercial size. Poplar has grown up on the clay soil of the southwest part of the township, and comprises

the major part of the new growth. To the northeast, jack pine predominates. As is to be expected, part of this new growth is somewhat scattered, and consequently inclined to be scrubby, but much of it is growing up in good clean stands, and in ten or fifteen years, if it is protected from fire, there will be considerable timber of merchantable size.

"The swamps in the southern part of the township contain considerable cedar and some spruce.

"On lots 2 to 7, of concession 1, there is a scattered growth of white pine which has survived the fires that have burned the other timber. The trees are of good size—twenty inches to three feet in diameter. It has been estimated that approximately 650,000 feet of this timber is standing.

"The country rock in the township is a white granite, and no indications of economic minerals were seen by the party.

"Deer were plentiful, as were partridge, but the young broods of the latter were very small, one, two or three chick to the hen. No other game was seen, and lack of waters rendered the most complete fishing equipment taken by members of the party useless.

"The east branch of the Split Rock River is bordered by hay meadows in lots 8, 9 and 10 of concession 3, and a rough wagon road has been opened to provide access from the Dewart line, for the purpose of harvesting the crop. A similar condition exists on the lower end of the creek which enters the Split Rock River in concession 5, the wagon road giving access in this case, being a wagon road to Goliere Bay of the Lake-of-the-Woods."

Appendix No. 29

Extract from O.L.S. Phillips & Benner's report on survey of township of Goldie' Thunder Bay, dated Port Arthur, June 28th, 1924.

"The greater part of the township has been included in two licenses issued to Chas. Greer and associates and the greater part of the jack pine has been cut off the northerly and westerly parts of the township. The spruce has not been cut, but there is not a great quantity of this species. We understand that a more detailed estimate of the timber was made for the local Land Office prior to the survey. No part of the township has been burned over very recently, save a few acres along the westerly part of the south boundary.

The soil is, generally, a red clay loam and appears to be of good quality and similar to that in the Dawson Road lots and the township of Forbes. Various settlers in these latter areas have informed us that they seldom have a crop failure in this soil, and that it does not bake hard when dry. The best land is along the Oskondiga River. Concession 6 is rocky, and not of much value for farm land save in a few places. We would estimate that well over fifty per cent. of the land is suitable for cultivation.

"The rock formation is Keewatin and no minerals were noticed.

"The easterly part of the township is more broken than the west. A considerable area along the Oskondiga River is level land. Concession 6 is rough and rocky.

"The Oskondiga River is the only waterway in the township. This river is of an average width of two chains and has numerous rapids. It is now being used to drive out some of the logs taken out by Mr. Greer last season. There are five small islands and these were lettered 'A' to 'E,' and where possible a tree was marked with the letter of the island.

"There are no government roads constructed now within the limits of the township. The Dawson Road is about half a mile south of the southwest angle and there would be no difficulty in constructing a road to connect with this. There is a wagon road running northeast from Buda. This strikes the north boundary of the township just west of the northeast angle of lot 3, and then continues along the north limit and on into Forbes township. It was cut out for a summer road into one of Greer's camps. There are several winter roads crossing the northerly and westerly parts of the township. These were used in bringing out the logs to the track last winter and the grades on most of them are easy.

"There are no squatters within the limits of the township and the only improvements noticed were the Greer camps. The southerly boundary cut off a portion of the clearing and a small out-house of the settler located on lot 78, concession 'B,' Dawson Road lots.

"Game is not plentiful, but a few deer and beaver were noticed."

Appendix No. 30

Extract from O.L.S. Sutcliffe & Neeland's report on survey of township outlines, district of Cochrane, dated New Liskeard, December 3rd, 1923.

SOIL

"For the most part the soil within the limits of the survey is sand, clay or both mixed, but mostly a sandy clay, even in the low ground, and not considered from an agricultural standpoint in the same class with soil near Cochrane.

TIMBER

"Spruce, jack pine, poplar, birch and balsam covers the country in quantity in the order named, but on the whole, is much smaller than that found farther south. In fact over large areas the timber is small and thin. A fairly large area also in the vicinity of New Post brook and Little Abitibi River has been burned over, but the timber, burnt, generally speaking, was not large.

MINERALS

"No minerals of economic value were observed, and the only outcroppings of rock seen were granite.

WATER POWERS

"A drop of possible eighty (80) or ninety (90) feet occurs on New Post brook, about thirty (30) chains east of New Post, but the low water flow is not sufficient to make it valuable while larger and better powers on the Abitibi within ten (10) miles are undeveloped.

"The Little Abitibi River averages over three chains in width, and over practically the whole length between the second and third base lines is one series of rapids, with comparatively low banks and few outcroppings of rock, and considered also of small value from the standpoint of power or navigation.

WATER COURSES

"Little Abitibi as stated above is the next largest river to the big Abitibi, with the French River a close second. New Post brook has an average width of approximately one (1) chain with many small rapids. It provides a fair canoe route to the Little Abitibi, which, however, is used little by Indians for reasons mentioned above.

ANIMAL LIFE

"A few moose were seen, but from indications, not plentiful. Beaver are scarce also, but we saw indications of mink, marten and otter, and in one stream named Trout Creek, we caught some nice brook trout."

Appendix No. 31

Extract from O.L.S. J. Coltham's report on traverse of Kabinakagami River, Algoma and Cochrane, dated Parry Sound, December 24th, 1923.

"Kabinakagami River lies within the townships of Ermine, Derry and Lipton already outlined and in the township west of Ermine outlined this year by Ontario Land Surveyor H. J. Beatty, of Pembroke. This lake is a beautiful sheet of water dotted with numerous islands, ranging in area from a mere basket of foliage to several hundreds of acres. The shores on the greater part of the lake are rocky, rising from five to twenty-five feet high, with an occasional marshy bay. While most of the rock is solid, there is considerable shore, especially around the islands that is made up of loose boulders. At the extreme south end of the lake a large grassy meadow extends for some three-quarters of a mile southward. This in reality, for the most part cannot be termed a marsh as a greater portion of the surface of it is hard firm ground.

"Along with several smaller ones another grassy meadow of large area lies adjoining the lake near and around the mouth of the Little Kabinakagami River. As these meadows only rise slightly higher than the surface of the lake, and no doubt in high water would be flooded, I thought it advisable to traverse them as shown on the plans accompanying this report. The remainder of the shore of this lake is rocky except for a number of clay outbanks on the east side of the lake commencing near the mouth of the Oba River and numerous fine sand beaches. The water appears, generally speaking, quite deep, except for the east side, where reeds extend for some distance out in the lake. The shores of the islands are rocky rising from five to twenty-five feet high. Most of these islands are fairly level, and covered with early and are beautifully situated for tourist sites. Only a few tourists were met with on this lake.

"The Kabinakagami River from its outlet at the lake was traversed down stream through the townships of Woolrich, Alderson, McFarlan, Verdun, Landry, Irish and Nassau. Numerous portages have to be made around the different rapids and falls, but these are mostly short and in good condition. The river generally is between two and three chains in width, except in the township of Woolrich where it enters and runs through a marshy lake for several miles, varying in width from fifteen to thirty chains. From the north end of this marshy lake to the Canadian National Railway the water runs swift and shallow. Rock along the shore of the river is found in places through the township of Derry, but from there on it is conspicuous by its absence. After leaving the

Canadian National Railway through to the south boundary of the township of Studholme the banks of the river are clay from five to twenty-five feet high, with numerous small stretches of marshy shore. Except for a number of small rapids and falls the current is slow and sluggish. True it is that there are a number of rapids and falls, but no water power of any consequence could be developed.

TIMBER

"This whole country appears to be fairly well clothed with timber of a medium size; chiefly composed of spruce, birch, balsam, poplar, banksian pine, with cedar along the streams, rivers and lakes ranging in diameter from six inches to twenty-four inches. While a great part of the forests are only suitable for pulpwood, yet there are clumps of spruce that average a fair size. On the east shore of the lake, and on the north shore there are small areas covered with norway pine between ten inches and twenty inches in diameter. A considerable area of country stretching from the northwest Bay of Kabinakagami lake was on fire during the progress of the survey.

SOIL

"For the most part of the land around Kabinakagami Lake appeared clear of very much surface rock, and no doubt would be suitable for agriculture as soon as a sufficient area of the country was cleared so that climatic conditions would not interfere due to the presence of too much bush. The soil is sandy in places, while in others it runs to a sandy loam. As you go northward down the Kabinakagami River the land is a clay loam much the same nature as the country around Hearst and according to the few people at Kabina is very productive in the line of vegetables.

FISH AND GAME

"The lake abounds with pickerel, pike and whitefish, with speckled trout in the Kabinakagami River and adjoining streams. This country seems to be the centre of the game country. Large numbers of moose with an occasional caribou and red deer were seen at all times. The smaller fur bearing animals as beaver, otter, fisher, mink and muskrat appeared quite plentiful. Wild fowl appeared quite numerous.

"No showings of minerals were met with at all throughout the survey."

Appendix No. 32

Extract from O.L.S. T. G. Code's report on traverse of part of Kabinakagami and Kenogami Rivers, Cochrane, dated Cobalt, December 31st, 1923.

"The Kabinakagami River is not used as a route to Mammawinattawa Post to any great extent as other rivers flowing north from the Canadian National Railway are less rough. In the township of Studholme there is a one-and-a-half mile rapids. The portage about the same length, was in very poor condition and had to be cut out. - In high water considerable of this rapids might be run by good canoemen. From the north boundary of the township of Studholme all the portages are shown on the plans and field notes. All had to be improved.

SHORES

"From the Canadian National Railway north to station 44, the shores are rocky with a heavy clay and gravel overburden. From station 44, the underlying formation is limestone, with a gravel and clay overburden.

FALLS AND RAPIDS

"From the Canadian National Railway through to station 107, this river is a series of falls and rapids. The volume of water is not exceptional in extreme low water, but with storage dams located as to conserve the spring water, considerable power is available, where the timber is, to say the least, fair.

"There are four falls within six and a third miles north of north boundary of the township of Studholme. Rapids between the falls permit of considerable raise of head without interference with other owners of power, if the power rights are owned separately.

"The survey was made in midsummer with the water extremely low. A cross section and flow measurement was not taken as the results would have been very misleading. The Canadian National Railway have a gauge at the crossing of the Kabinakagami and the exact flow over several years is, therefore, obtainable.

$3\frac{1}{2}$ miles north of Studholme Falls No. 1 Sta. 15 has a head of 14.0 ft.

$4\frac{1}{2}$	"	"	2	23	"	21.0
$5\frac{1}{4}$	"	"	3	28	"	20.0
$6\frac{1}{3}$	"	"	4	36	"	24.9

"The head is figured from smooth water above to smooth water below the falls, and includes short rapids and falls from where the plans show head to foot.

THE LIMESTONE RAPIDS

"The Limestone Rapids is about seventeen and one-half miles in length. In low water it is necessary to lighten canoes to not more than 250 pounds inside load and lead the canoe through the deepest channels, lifting it over all the very shallow places. Two canoes were so badly worn as to be of no future value. One was left in the Hudson Bay winter post at the Forks-Kenogami and Albany Rivers and the other tarred up to bring us home. The cook's canoe was not used for second and third trips back for outfit and was, therefore, not in such bad condition.

"Without an extensive survey, the Limestone Rapids is very doubtful as a source of power.

TIMBER

"Except where brulé is shown on the plans, the timber seems to be very similar to that south of the Canadian National Railway. The difference in size varies very little, being somewhat smaller as one travels north.

SOIL

"With the exception of a few rock outcroppings within seven miles north of the Canadian National Railway, the rock formation is limestone with gravel overburden, and a top soil of good sandy clay loam suitable for agriculture. Potatoes at Mammawimattawa Post compared favourably with around Cobalt, except they were probably a little later.

KENOGAMI OR ENGLISH RIVER

"The survey of this river was commenced at the south boundary of the Indian Reserve about three and one-half miles north of Mammawimattawa Post. The width at this point is about twelve chains. The river increases in size to about twenty-four chains a mile or so from the outlet. At its outlet into the Albany River is thirty chains.

"The current is very fast, about three miles per hour on an average. Parts of the river have to be tracked where the water is too deep for poling, the rest may be paddled. There are no portages, but in low water there are a few shallow fast places. The only one of importance being a limestone rapids at station 69. There is a good channel near the west bank at this point, where the water is sufficiently deep for loaded canoes.

"This is an excellent route to James Bay. The Hudson Bay Company and Revillon Frere use gasoline launches and even fairly large flat bottomed steam boats in high water.

"The route used from the Canadian National Railway commenced at Pagwa on the Pagwa River, which flows into the Kenogami. Supplies of all kinds are loaded into large scows, about twelve feet wide and thirty feet in length, and floated all the way to James Bay when the water is high. The Hudson Bay factor told me the scows could be floated to Mammawimattawa in fifteen hours, a distance of about seventy miles. It takes about the same time from there to the Albany River, a distance of about sixty miles.

SHORES

"The shores are mostly high and gravelly. The soil is a good sandy clay loam. Nearing the Albany River the land is low and flat."

Appendix No. 33

Extract from O.L.S. D. J. Gillon's report on traverse of Seine River and islands, Kenora, dated Fort Frances, February 13th, 1924.

"All islands met with in the river and lakes were traversed and marked. A table has been prepared showing the numbers of these islands, traverse distances, acreage and a short description of each island. On the plans have been shown all the traverse courses and distances on shore line and island traverses, with the exception of those of some small islands in the river where, to avoid congestion, the measurements were omitted. These are shown on a specially prepared number of sheets. Those mining locations or groups of locations, which were located on the ground during the progress of the survey, have been shown on the plans, use having been made of all the data available from my own surveys and from information obtained in the past from other Ontario Land Surveyors who have assisted me in publishing correct maps by furnishing me with minutes of various surveys made by them. Where it was found impossible to locate any trace of old lines or posts, whole groups of locations have been omitted.

"During the course of the survey, water levels were carried up the river and across the lakes and check levels and measurements were taken to the contours established for the Fort Frances Pulp and Paper Company. All elevations refer to the bench marks established by the Department of the Interior of Canada along the Canadian National Railway by precise levelling.

"The measurements and levels show that the contours shown on the company's plans are substantially correct. While no actual contour lines have been run, the plans correctly show their positions. A traverse line has been run following as nearly as possible a general elevation not differing more than one or two feet from the required contour line. From these traverse lines levels and offsets have been taken to the correct contour points where pegs, marked with the elevation were planted. The contours on the plans are obtained from these points. Water levels were carried along the river and lakes and at intervals of about half a mile check levels were run back to the contour traverse line thus checking its elevation and position. During the season further investigation by the company's engineers has resulted in the decision to still further raise the height of the proposed dams so that final contour lines will have to be run. In fact since last August the work of running a contour line at elevation 1365, for the proposed Moose Lake development has been in progress and is still continuing.

"No efforts had been made to the Power Company's survey to locate original lines. No lines have been run on the ground to indicate the boundaries of those parcels of land shown on the plans as required for power sites so that there was nothing on the ground to connect these power sites with the traverse. Special efforts were made to locate the nearest original lines and posts and those found are shown on the plans.

"With this report is a profile showing the fall of the river from the Lac des Mille Lacs Dam, to the river below Sturgeon Falls, and the power company's projected developments thereon. The high water and tailwater levels given are those of the latest proposition and it is worthy of notice that the tailwater level given for the Sturgeon Falls power development is equivalent to 497 Public Works datum which is the present recognized high water level of Rainy Lake which would suggest that the proposed raising of the high water level to 500 or 501 has been abandoned."

Appendix No. 34

Extract from O.L.S. Chas. V. Gallagher's report on survey of certain township outlines in district of Sudbury, south of Canadian Pacific Railway, dated Porcupine, February 22nd, 1924.

"Part of the area included within these outlines, lying within three miles of the Canadian Pacific Railway, has been cut over in the past, apparently to secure railway ties. At the present, lumbering operations are in progress on the north half of township 32, and a compass line of recent date running east and west midway of this township, and another forming the north half of the westerly limit of this same township, were encountered. Lumbering operations were also carried on in recent years in the central, or north eastern part of township 29. On the southerly one mile of this township, and the northerly three-quarter mile of township 12F, and extending easterly into township 28 and 12 E, there is a fine stand of small black pine. In fact, nature is bountifully reforesting all the areas within these outlines that have been devastated by fire in past years, recent and remote. The southerly ten miles of the area included in this survey is apparently fairly well timbered throughout with spruce, balsam, jack pine,

poplar and birch up to fourteen inches, while in the southwesterly part of township 11F, there are many large white pine up to thirty inches, also some large cedar. The timber plan accompanying this report gives in detail the timber encountered along the lines.

PHYSICAL FEATURES AND SOIL

"While there are some high hills in the area, the district may well be described as undulating. The soil throughout is sandy, boulder strewn in a few small isolated areas, and the greater portion appears suitable for agriculture.

MINERALS

"No indications of economic minerals were observed, the outcrops noted being granite and few in number.

FISH AND GAME

"In the lakes in the northwestern part of the district many large pike were caught, in all other waters they were scarce and small. No other kinds of fish were seen. Moose appeared to be very numerous and there are some red deer. Beaver were plentiful in the greater part of the area, and signs of bear were common. Indications of other fur-bearing animals were rare. Partridges abound through the locality.

WATER POWERS

"No water powers were encountered within the outlines surveyed but there is a storage dam on the river which drains Side Burned Hill Lake. This has flooded quite a large area, and made line cutting very difficult on the northerly part of the west limit of township 29. It had also submerged the posts planted at high water mark referencing the southwest corner of Chapleau township, and these posts I removed and placed at the present high water mark as is shown in the field notes."

Appendix No. 35

Extract from O.L.S. McAuslan, Anderson & Moore's report on township outlines, south of Canadian Pacific Railway, district of Sudbury, dated North Bay, January 24th, 1924.

SOIL

"The only place we came across any soil having an agricultural possibility was along the south boundary of townships 11C and 11D, and on the south half of the line between townships 11 C and 11 D. These lines pass through almost level country with soil of sandy loam and clay. The balance of the survey passes through country wholly unsuitable for agricultural purposes, the soil being of light sand and in many places hilly and full of boulders.

PHYSICAL FEATURES

"Township 10 E, 10 F, and 10 G, might be classed as hilly increasing in roughness to the west, while townships 23, 24, 25, 11 B, 11 C and 11 D, are more or less rolling, with many areas of almost level land.

The height of land passes northwesterly through township 11 B, the northeast corner of 11 C, the southwest corner of 24 and through 25. Owing to the proximity of this the streams through the whole area are small. Only three were met with which were at all navigable with a canoe, namely: the Wakami River, flowing north out of Wakami Lake in township 20; the Wenebagon River, flowing south into Wenebagon Lake in township 10 D, which is navigable with a canoe only south of the north boundary of 10 D, and a small stream, which the Indians call Spruce River, flowing easterly through townships 10 F, 10 M and 10 D.

"Small lakes are numerous and are usually of spring water with gravel bottoms. Trout Lake, lying in the south corner of townships 11 B and 11 C, is a very pretty body of particularly clear water with gravel bottom and high shores.

TIMBER

"Judging by the trees this area was nearly all swept by fire between fifty and sixty years ago and many large areas again within the last fifteen years. Generally the whole area is poorly timbered. Patches of merchantable timber are scattered throughout the area. White and red pine from eighteen to thirty-six inches was discovered in small quantities around the lakes along the south half of the meridian between 11 B and 11 C, and along the south boundary of 11 B, also white pine of large size was seen in spots in the north part of 10 F, and more plentifully in the north part of 10 G. This, however, though very large, is of poor quality owing to its great age. Practically no new growth of pine appears.

"Jack pine up to fourteen inches appears in patches. A very good stand of this is located in the southeast corner of 25 and the southwest corner of 24, extending a short distance in 11 C. The south part of 11 B, and the southeast part of 11 C, also contains considerable jack pine of fair size.

"White birch, spruce and balsam not usually over twelve inches also appears in many areas.

"Cedar and black spruce predominates in the low lands, the cedar being usually of poor quality.

"Hard maple and yellow birch is also to be found on the hill tops in the north part of 10 G, and south part of 11 G.

GAME

"Moose and bear are quite plentiful, a few red deer were seen, but they are not numerous. Wolves were heard occasionally. Fresh work of beaver was seen on nearly all the lakes and streams and the smaller fur-bearing animals are said to be numerous. Partridge are also plentiful. The only fish caught were pike and these are numerous in all the lakes of any size, though it is there are trout and maskinonge in Trout Lake in townships 11 B and 11 C.

MINERAL

"The rock formation is principally granite and no evidence of valuable mineral was seen, though in this respect a surveyor in charge of a party, particularly on this class of work, has very little opportunity to investigate the mineral possibility of the country he passes over."

Appendix No. 36

Extract from O.L.S. James S. Dobie's report on traverse of English River, districts of Kenora and Patricia, dated Thessalon, April 12th, 1924.

"The physical characteristics of the territory adjacent to the portion of the English River surveyed during the season of 1923 are, generally speaking, similar to those of the portion described in the report for the previous year. Indian Lake, where the survey started for the season, is about four and a half miles long, with high rocky shores timbered with poplar, spruce, jack pine, balsam and birch, the relative abundance of each being apparently about in the order named. There are considerable areas of old second growth timber of varying ages. This lake has two outlets. The one flowing from the southwest end and runs southerly between high rocky banks with a few small bays, for a couple of miles where it enters Grassy Narrows Lake, about two miles west of the Hudson Bay Company's post on island 279. The other outlet leaves the southerly shore of Indian Lake about a mile and a half from the north end of the lake, and flows through a labyrinth of islands and channels to Grassy Narrows Lake, near the Hudson's Bay Company's post. A long bay runs to the south and east from a point about opposite the Hudson's Bay Company's post and from the most southerly point on this bay, a canoe route runs through a chain of lakes to Jones and Favel stations on the Canadian National Railway.

"Much of the country in the neighbourhood of Grassy Narrows Lake is covered with clay, and there are scattered areas of good land suitable for agriculture. It was not possible to gather data as to how large these tracts of clay lands are, but the impression one gets from passing along the shores is that they are not nearly so extensive as those farther up the English River between Camp Lake and Lac Seul. The timber in this section is the prevailing poplar, spruce, jack pine, etc., with large areas of second growth of varying ages.

"There is an Indian Reserve at the east end of Grassy Narrows Lake, and some of the larger islands in this neighbourhood are included in the Reserve either wholly or in part. The points where the boundaries of the Indian Reserve intersect the shores of the lake were located and it was found that at each of these points an iron bar had been driven into the ground beside a wooden post. The boundaries of the reserve had also been cut out and reblazed not many years ago. These iron bars were all tied to the various transit stations and will serve as additional monuments for the perpetuation of the survey.

"There are a large number of Indians who make this reserve their headquarters during the early part of the summer, remaining there until they receive their treaty money about the end of June, after which they depart for the railway where they spend their time acting as guides for tourists or picking blue berries which are shipped to Winnipeg in large quantities during the season.

"The land around the Indian villages is of excellent quality, but beyond raising a few potatoes, no attempt is made at agriculture.

"The Hudson's Bay Company have a post on Grassy Narrows Lake, presided over by Mr. Donald Murchison, whose courtesy is of the happy type which makes one's memory linger in happy recollection.

"From Grassy Narrows Lake, the English River flows westerly through Fox and Lount Lakes. It then turns more northerly through Separation Lake to Separation Rapids. The lakes named above are all very similar as far as physical characteristics go. Shores generally high and rocky, covered with the prevailing poplar, spruce, jack pine, etc., deeply indented shore line, with long narrow bays

usually ending in fairly extensive marshes and low areas. There are numerous islands of all sizes from mere dots to one near the outlet of Lount Lake of 387 acres. In some places there are small areas of clay land similar to that around Grassy Narrows Indian Reserve, but on the whole these are not of great importance.

"From the south side of Separation Lake a short distance east of Separation Rapids, Fiord Bay extends in a southwesterly direction for about four miles. Here a small stream drops into the bay over a rocky ledge about twenty-five feet high. From this point a canoe route runs to Minaki via Sand Lake.

"From the Hudson's Bay Company's post at Grassy Narrows Lake to Separation Rapids is twenty-two and a half miles by the canoe route, usually followed.

"At Separation Rapids, the river drops about three feet in a distance of ten chains. There are two channels, the water nearly all flowing through the northerly one. In fact in exceptionally dry seasons the southerly channel is dry. At the time of the survey there was not sufficient water in this channel to float a canoe. Geodetic survey bench mark No. 38 K is located on the south shore of the southerly channel a few yards from the head of the rapids. A portage runs over the island between the two channels.

"It is not considered likely that there will ever be any water power development at this point. The fall is small and the banks are of such a nature that it would be a very expensive matter to concentrate any of the other falls on the river at this point. The most feasible plan would appear to be to flood this rapids and add the fall to one of the larger falls down stream. For this reason no water power reserve was laid out at this point.

"From Separation Rapids to Upper Kettle Falls is six miles. The river flows northwesterly and widens out so as to resemble a long narrow lake, and for the first three miles the canoe route leads through a labyrinth of islands where one is constantly in doubt where to head next. In some places the current is fairly strong and about a mile above Kettle Falls there is a drop of about four inches, which results in a current up which it is difficult to paddle.

"The general characteristics along this stretch are about the same as farther up stream. There are a few small groves of red and white pine scattered here and there, and these are particularly noticeable on some of the islands. The red and white pine is, generally speaking, of an inferior quality, and the quantity is small. Several long narrow bays lead off from the main river, each one ending in a fairly extensive marsh.

"These marshy bays all along the river are very much alike in many respects. The bay usually terminates in a small creek which dwindles to a mere trickle in a short distance. There is usually a considerable area of low grassy land where the shore line is of a most indefinite character, and where it is usually impossible to determine with any degree of exactness where the lake ends and the shore begins. In most cases, a foot or so of a raise in the water level would submerge large areas which are ordinarily quite dry. These low areas sometimes extend back for considerable distances, and if it is ever considered advisable to utilize these lakes as storage reservoirs, considerable contouring would be necessary, particularly around the ends of these bays.

"Upper, Middle and Lower Kettle Falls, with drops of 7.05, 18.60 and 13.35 feet respectively, amounting to thirty-nine feet in all, occur within a distance of about a mile and a half. Lower Kettle Falls is only a 110 feet wide at the crest and there are high rocky banks on each side. By building a dam at this point and flooding out Upper and Middle Kettle Falls, and Separation Rapids, with the

small amount of fall between, a possible head of forty-five feet could be concentrated at this point, which with a regulated minimum flow of 8,000 c.f.s., and eighty per cent. efficiency would give approximately 33,000 horsepower. The splendid storage facilities provided by the lakes above would render it possible to maintain a peak load of very much greater than this for several hours. There are two low places on each side of the river where levees would have to be constructed and considerable survey work would have to be done here, to determine just what are the possibilities in this direction.

"On the other hand a dam at Middle Kettle Falls to raise the water level back to Maynard Falls, flooding out Separation Rapids, could be constructed as the necessary elevation could be obtained within a short distance of the shore on either side. There are a couple of places where short levees would be required. In order to concentrate the total head of the three falls at this point, it would be necessary to pipe the water to a power house below the Lower Kettle Falls, a distance of over half a mile, and this might present some difficulty, as some of the ground to be crossed is very low.

"I merely point out these possibilities, but make no recommendation as to what is the best plan for development of this power as a great deal of careful investigation will have to be undertaken before an intelligent opinion can be formed. Suffice it to say that there is here a power possibility of very great magnitude.

"From the Lower Kettle Falls, the river flows in a northwesterly and westerly direction to One Man Lake. This stretch of river is fairly wide resembling a long narrow lake in places. In other places it narrows and flows with a strong current. Sturgeon River comes in from the north, about three miles upstream from One Man Lake. This stream was traversed for about two miles to the first portage, where post No. 313 was planted in a mound of stones on the north bank. There is a fall of about twenty feet here, with another one visible a short distance upstream. This stream is of fair size, and drains a number of small lakes lying to the north. The portion of Sturgeon River traversed is wide with no perceptible current. The banks are high a short distance back from the shore, although there are some stretches where the shore is low and grassy, but the high ground is not far behind.

"The English River, along this stretch, has high banks for the most part, although there are a couple of the marshy bays characteristic of the river, where some low ground exists. In these cases, however, it is not far back, to the high land. The prevailing timber is similar to that on the upper stretches, poplar, spruce, jack pine, etc., with considerable areas of second growth.

"One Man Lake is seven and a quarter miles long. It has high rocky shores, although there are several sections where considerable areas of clay soil exist. The largest area is around the north end of the lake. At this end of the lake there is an Indian Reserve where a small number of Indians make their headquarters. The Hudson's Bay Co. also have an outpost on the north shore a short distance east of the Indian Reserve, where the English River enters the lake.

"One Man Lake is a fairly large sheet of water, with a number of high rocky islands. There are a number of deep bays on both sides of the lake, each one with the characteristic marsh at the end of it. In addition to these marshes there is a considerable area of flat hay land around the mouth of the creek which flows through the west side of the Indian Reserve. On this wild hay is cut and

used for feed for a few head of cattle owned by the local Indians, and for a team of horses which are the property of the Hudson's Bay Co.'s representative at this point.

"The timber around this lake is the usual poplar, spruce, jack pine, birch, balsam, etc. and in some cases the quality is good and the quantity fairly large. There are, however, large areas of second growth of varying ages, although no signs of recent fires were seen.

"Into a bay on the south side of the lake, a small stream enters, which drains Hawk Lake, a fairly large lake lying partly in the Islington Indian Reserve. There is a portage on this stream not far from the mouth, and at the upper end of it a dam has been built by the Hudson's Bay Co. which floods out a small stony rapids a short distance farther up stream. The survey was carried out this stream as far as this portage and Post No. 336 was planted in a stone mound near the end of the portage. A good canoe route exists from One Man Lake to the Winnipeg River via this stream and Hawk Lake, from which a portage about half a mile long through the Indian Reserve leads into a small lake connected with Winnipeg River by a creek with barely perceptible current. My party used this route coming out at the end of the season and found it very convenient.

"The English River where it flows out of One Man Lake is divided into two channels by Island No. 603 which has an area of twenty acres. There is a slight current at this point and the river immediately widens out into a small lake expansion. The survey was discontinued for the season at this point on the 27th September. Post No. 338 was set in a mound of stones at transit station No. 1455 on the north shore of the north channel.

"The portion of the English River and its lake expansions surveyed during the season is of great natural beauty and the remarks made in the last year's report as to the attractiveness of the English River as a holiday resort, apply with equal force to the portion surveyed this season. One wonders why so few tourists go that way.

"The pulpwood resources of the territory covered during the season appear to be very great, although it is of course obviously impossible to even hazard an estimate as to the total quantity available, as this would have necessitated systematic explorations inland, which it was not possible to undertake and carry on the work of the survey. As far as could be seen from the river, there does not appear to be any difference between the quantity or quality of the timber on either side of the river, although it is impossible to say how far back that condition continues. The amount of saw log timber is comparatively small in proportion to the amount suitable for pulpwood. The scattered areas of red and white pine are very small and the timber generally of poor quality.

"Geologically speaking the greater portion of the area covered by the survey is Laurentian. Near the west end of Separation Lake the formation changes to diabase and schist which continue to about two miles above Kettle Falls, where the granite again comes in and continues throughout the rest of the territory covered by the survey. Local magnetic attraction was fairly pronounced in a few places but no economic minerals were seen.

"The river and lakes abound in pickerel and pike of large size and in some of the lake expansions of the river, white fish are plentiful. Lake trout are very plentiful in the lakes on the canoe route from Grassy Narrows Lake to Jones Station. The Indians report that sturgeon are plentiful in One Man Lake.

Deer, moose and the usual feathered game are abundant, ducks being very plentiful in the marshes. In some parts, particularly near One Man Lake, wild rice is very plentiful. One family of Indians arrived at One Man Lake Indian Reserve in September with over a ton of wild rice bagged up for use as food during the winter."

Appendix No. 37

TORONTO, ONT., October 31st, 1924.

HONOURABLE JAMES LYONS,
Minister of Lands and Forests, Ontario.

Sir,—I have the honour to submit herewith the report of the Colonization Roads Branch of the Department of Lands and Forests for the fiscal year ending October 31st, 1924.

The total expenditure for the year was \$447,444.66. Of this amount \$199,478.27 was expended directly by the Government on roads and bridges, the number of townships receiving aid being 185. The amount expended on inspection, surveys and miscellaneous services was \$20,769.42, and the balance, a sum of \$227,196.97 was distributed as grants to 216 Colonization Road By-laws, which were passed by a total of 162 different municipalities.

The area in which the Colonization Roads Branch makes direct grants has been reduced, which accounts for the total expenditure by the Branch for the fiscal year showing a reduction of \$380,411.32 from the preceding fiscal year ending October 31st, 1923.

The trunk and tourist roads received considerable attention, and it is a question if a more intensive construction policy for this class of road should not be adopted.

The co-operation of those interested in the betterment of roads in the Colonization Road area has greatly improved, and I suggest perhaps even better conditions would develop if townships could be induced to have only one overseer.

A compilation of the individual reports gives:

Work	Direct Grants	By-laws	Total
Cleared and stumped.....	29,560 rods	62,269 rods	91,829 rods
Graded and shaped.....	67,256 "	160,538 "	227,794 "
Surfaced.....	76,798 "	182,916 "	259,714 "
Ditched.....	12,821 "	22,594 "	35,415 "
Cut and fill.....	49,449 cu.yds	91,077 cu.yds	140,526 cu.yds
Bridges.....	46 "	57 "	103 "
Culverts.....	701 "	1,242 "	1,943 "
New Road construction.....	17.95 mls	66.98 mls	84.93 mls
Old Road maintenance.....	330.98 "	839.40 "	1,170.38 "

Direct Grants, Total Expenditure.....	\$199,478 27
By-law Grants, Total Expenditure.....	227,196 97
Miscellaneous, Total Expenditure.....	20,769 42

Colonization Roads Branch, Total Expenditure..... \$447,444 66

Receipts..... \$3,713 39

Note.—Details printed in Public Accounts.

C. H. FULLERTON,
Superintendent Colonization Roads.

Appendix No. 38

TO THE HONOURABLE JAS. LYONS,
Minister of Lands and Forests, Ontario.

TORONTO, ONT., October 31st, 1924.

SIR,—I have the honour to submit to you the report on the construction and maintenance of "Roads and Bridges," together with the operation of "Farms," "Saw Mills," "Fire Relief," "Seed Grain" and other activities carried on under the provisions of the Northern and Northwestern Ontario Development Act, 1912, and Amendments, during the year ending 31st October, 1924.

The work accomplished and expenditures made in the different districts are shown on tabulated statements which are attached hereto.

SECTION 1 (B)—ROADS AND BRIDGES

The "Maintenance Patrol" System which had been largely confined to trunk roads, was this year extended to many of the main market and leading roads with as great success as that shown on the trunk roads in previous years and many improvements were effected at a minimum cost.

Commencement of a more permanent type of road construction for heavily travelled roads in Northern Ontario was made by the completion of a cement-concrete road between Sudbury and Coniston, and the letting of contracts for bituminous-penetration roads between Creighton and Copper Cliff and between Timmins and South Porcupine. A considerable amount of the preliminary work and grading has been done on the two last mentioned roads, but the contractors did not, in either case, progress far enough to do any of the penetration surfacing.

A considerable portion of the increase in road expenditure this year is due to the transfer of the "Direct Grant" work previously performed by the Colonization Roads Branch, in the territory north of the French River, to the jurisdiction of this branch, the position now being that the Northern Development Branch officials supervise all road and bridge work in that territory, although the work done under municipal by-laws is carried on under the Colonization Roads Acts.

The construction of all bridges in the territory north of the French River being also placed under the jurisdiction of this branch, there is a considerable increase in bridge expenditure as compared with the previous year.

The total expenditure on roads and bridges amounts to \$3,010,078.35.

SECTION 1 (D)—FARMS

At New Liskeard Farm, the work of improving the farm buildings and erecting fencing was proceeded with under the supervision of the Department of Agriculture; the Northern Development Fund providing for an expenditure of \$10,956.70.

At the Demonstration Farm, situated at Hearst, twenty-five acres of additional land were cleared, fences erected, and preparations made for the further development of the farm. Expenditure \$3,206.27.

SECTION 1 (D)—FIRE RELIEF

Accounts were paid for material and supplies furnished by the Northern Ontario Fire Relief Committee to those in the zone of the Haileybury fire of 1922 who required assistance. Total expenditure, \$47,038.51.

SECTION 1 (D)—SAW MILLS

Operation was continued of the two portable saw mills installed in 1923, to assist the sufferers from the fire of October, 1922, in the vicinity of New Liskeard. The cost of operations during the year was \$6,678.10, resulting in the production of 1,124,129 feet b.m. of lumber.

SECTION 2 (1)—SEED GRAIN

The demand for seed distribution through the Northern Development Branch, which had shown a decline in 1923, dwindled in the past season to small proportions. The majority of the farmers of the north are not now applying for government aid in their seed purchases, but are either saving their own grain for the purpose or obtaining their supplies locally. The total quantities sold by the branch in 1924 were: Oats, 4,251 bushels; wheat, 306 bushels; barley, 536 bushels, at a total cost of \$7,662.69.

C. H. FULLERTON,

Director, Northern Development Branch.

NORTHERN DEVELOPMENT BRANCH

STATEMENTS FOR REPORT FOR YEAR ENDED, 31st, OCTOBER, 1924.

SUMMARY OF EXPENDITURE

FOR THE THIRTEEN YEARS ENDED 31st OCTOBER, 1924

NORTHERN AND NORTHWESTERN ONTARIO DEVELOPMENT FUND

SECTION	Summary of Expenditure 23rd May, 1912, to Oct. 31st, 1923	Expenditure for year ended Oct. 31st, 1924	Total Expenditure to Oct. 31st, 1924
	\$ c.	\$ c.	\$ c.
Section 1 (a) Works and Improvements.....	2,100 00		2,100 00
Section 1 (b) Roads.....	12,712,588 89	3,010,078 35	15,722,667 24
Section 1 (d) Farms.....	121,282 92	14,226 51	135,509 43
Section 1 (d) Assistance of Settlers, Feed Shortage.....	124,152 58	37 00	124,189 58
Section 1 (d) Assistance of Settlers, Fire Relief.	282,050 99	47,038 51	329,099 50
Section 1 (d) Assistance of Settlers: Saw Mills.	4,503 55	6,678 10	11,181 65
Section 1 (e) Creamery and Grain Elevators..	61,126 16	89 00	61,215 16
Section 2 (1) Seed Grain.....	263,486 22	7,662 69	271,148 91
Section 2 (1) Agricultural Implements.....	46,771 37	17 55	46,788 92
Section 2 (2) Cattle Purchase Account.....	21,617 99		21,617 99
Section 2 (4) Schools and other Public Bldgs..	49,491 62	3,076 87	52,568 49
Section 2 (6) Fire Protection.....	3,773 45		3,773 45
Returned Soldiers' and Sailors' Land Settlement Act, 1917.....	1,183,914 79	1,653 23	1,185,568 02
	14,876,870 53	3,090,557 81	17,967,428 34
Settlers' Loan Account, Amending Act, 1916...	1,080,843 85	97,513 72	1,178,357 57
	15,957,714 38	3,188,071 53	19,145,785 91

NORTHERN DEVELOPMENT BRANCH

STATEMENT OF EXPENDITURE, YEAR ENDED 31ST OCTOBER, 1924

Making of Roads, Section 1 (b):

Bruce, A. E. D., Secretary and Accountant, salary 2 months.	\$575 00	
Sinton, Jas., Chief Engineer and Purchasing Agent, salary..	2,991 66	
Leitch, J. S., Bridge Engineer, salary 7 months.....	1,754 16	
Smyth, W. R., Supervisor of Settlement, salary 4 months...	1,000 00	
Beardall, F. G., Principal Clerk, salary.....	2,400 00	
Lawer, W. L., Principal Account Clerk, salary.....	2,300 00	
Reid, Alex., Draughtsman, salary.....	2,000 00	
Dicker, C. L., Senior Clerk, salary.....	1,600 00	
Fleming, Miss E., Clerk, salary.....	1,400 00	
		\$16,020 82
Wages.....	\$1,656,955 78	
Contracts.....	471,583 46	
Supplies, Equipment, Rentals, Services and Disbursements..	865,518 29	
		2,994,057 53
		\$3,010,078 35

Advancement of Settlement and Colonization, Farms, Section 1 (d):

Wages.....	\$9,101 31	
Supplies, Fencing, Equipment and Disbursements.....	5,125 20	
		14,226 51

Assistance of Settlers—Feed Shortage, Section 1 (d):

Freight and Services.....		37 00
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Assistance of Settlers—Fire Relief, Section 1 (d):

Material Supplies, Freight, Services and Disbursements.....		47,038 51
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Assistance of Settlers—Saw Mills, Section 1 (d):

Wages.....	\$4,786 50	
Gasoline and Supplies.....	1,891 60	
		6,678 10

Creamery, New Liskeard, Section 1 (e):

Butter Wrappers and Supplies.....		89 00
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Seed, Grain, Section 2 (1):

Seed, Freight, Services and Disbursements.....		7,662 69
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Agricultural Implements, Section 2 (1):

Printing, etc.....		17 55
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Schools and other Public Buildings, Section 2 (4):

Wages.....	\$941 82	
Contract.....	2,000 00	
Disbursements.....	135 05	
		3,076 87

Returned Soldiers' and Sailors' Land Settlement Act, 1917:

Services, Rentals and Disbursements.....		1,653 23
		\$3,090,557 81

Settlers' Loan Account, Amending Act, 1916:

Dane, F., Commissioner, salary.....	\$5,000 00	
Kennedy, W. K. P., Accountant, salary.....	2,700 00	
Crawford, G., Stenographer, salary.....	1,100 00	
Jack, F. M., Stenographer, salary.....	831 96	
		\$9,631 96

Net amount of Loans issued..... \$86,965 00

Expenses..... 916 76

87,881 76

97,513 72

\$3,188,071 53

NORTHERN DEVELOPMENT BRANCH

STATEMENT OF REVENUE FOR THE YEAR ENDED 31ST OCTOBER, 1924

<i>Section 1 (b), Roads:</i>	
Sale of Supplies, Camp Buildings and Equipment; Rentals, Interest and Refunds.....	\$4,484 38
<i>Section 1 (d), Farms:</i>	
Sale of Hay:.....	176 81
<i>Section 1 (d), Assistance of Settlers</i>	
Cash Sales of Feed and Notes retired.....	6,361 39
<i>Section 1 (d), Assistance of Settlers—Fire Relief:</i>	
Refund on Tents.....	7,522 69
<i>Section 2 (1), Seed Grain:</i>	
Cash Sales and Notes retired.....	28,764 11
<i>Section 2 (1), Agricultural Implements:</i>	
Notes retired.....	10,274 82
<i>Section 2 (2), Purchase of Cattle Account:</i>	
Payment on account of Notes.....	183 76
<i>Clause 5 (1-12), Soldiers' Settlement Account:</i>	
Notes retired { (Kapuskasing Colony) Sales of Buildings }.....	41,937 95
{ (Shackleton Colony) rental of Sidings.... }	
	<hr/> \$99,705 91
<i>Settlers' Loan Account:</i>	
Payments on Principal, Interest, etc.....	133,857 08
Total Revenue under all heads, 1924 account.....	<hr/> \$233,562 99

NORTHERN DEVELOPMENT BRANCH

ASSETS, 31ST OCTOBER, 1924

Cash Balances unexpended: Roads and Miscellaneous Services..	\$62,750 70	
Soldiers' Settlement Account.....	13,060 20	
		<hr/> \$75,810 90
Settlers' Loan Account.....		24,625 00
Seed Grain, Notes outstanding.....		78,884 09
Assistance of Settlers, Feed Shortage, Notes outstanding.....		56,946 24
Agricultural Implements, Notes outstanding.....		35,586 79
Cattle Purchase, Notes outstanding.....		3,123 40
Settlers' Loans outstanding.....		696,314 68
		<hr/> \$971,291 10

CONTINGENT ASSETS

Roads—Buildings, Plant, Equipment, Machinery, Motors, Tractors, etc.....	294,093 62
	<hr/> \$1,265,384 72

DEPARTMENT OF LANDS AND FORESTS
ANNUAL REPORT OF WORK DONE,
SUMMARY OF

	Side Brush- ing L	Cutting		Burning		Stump- ing and Grubbing		Grading		Cross Laying		Ditch- ing	Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.		L mls.	Yards used
Algoma.....	21.09	7.55	..	4.30	..	7.04	..	3.15 46.6	N re	.....	.....	33284 New 13000 Cleaned	115.12	9894
Cochrane.....	32.05	66.8	..	68.	..	77.05	..	58.75 322.68	N re	0.40	.....	420359 2000 Cleaned	82.61	62666.14 5736.21
Fort William.....	36.11	35.519	..	.....	..	24.569	..	29.33 12.5	N re	.....	.....	61197 43832 Cleaned	57.4	52295 8561.4
Kenora.....	62.40	10.61	..	35.18	..	14.81	..	25.56 22.56	N re	1.85	.....	84655 New 56156 Cleaned	32.42	19076 221
Manitoulin.....	27.70	5.0	..	3.8	..	5.70	..	7.60 15.3	N re	.....	.....	21422	68.6	23696
Muskoka.....	34.7	1.0	..	3.0	..	13.87	..	17.83 84.5	N re	.....	.....	18704	27.975	22097.21
Nipissing.....	17.8	1.98	..	16.14	..	7.0	..	13.57 9.04	N re	1.41	.....	24425	5.25	4200 9648
Parry Sound.....	34.25	12.58	..	.....	..	11.154	..	34.25 16.3	N re	.....	.....	40157	60.356	9028.2
Port Arthur.....	24.75	24.346	..	5.25	..	25.205	..	33.6 6.0	N re	.....	.....	93741	19.025	18304 92308
Rainy River.....	4.54	.....	..	.....	..	2.06	..	3.22 2.0	N re	.....	.....	20325	32.352	1597.61
North Renfrew...	0.28	.....	..	.....	..	.....	..	25.0	N re	.....	.....	2680	6.0	5565 820
Sault Ste Marie...	7.00	8.8	..	0.50	..	16.05	..	15.9 34.25	N re	0.25	.....	55172	27.1	25245
Sturgeon Falls....	42.52	7.82	..	7.00	..	4.81	..	8.65 76.0	N re	.....	.....	17215	4.23	6704 4403
Sudbury.....	39.5	36.4	..	26.80	..	38.30	..	99.81 57.0	N re	1.251	.....	319097	185.5	67996
Temiskaming.....	9.51	6.72	..	17.75	..	9.57	..	38.14 262.75	N re	0.179	.....	91089 42850 Cleaned	90.34	63572 1870
Totals.....	394.20	225.125	..	187.72	..	257.18	..	389.36 992.48	N re	5.34	.....	1303522 157838 Cleaned	814.254	919351 123567.6

NORTHERN DEVELOPMENT BRANCH

YEAR ENDING 31ST OCTOBER, 1924

ELECTORAL DISTRICTS

Crushed Rock			Drag- ging	Other Rep'rs	Culverts				Bridges		REMARKS
Yds. crush- ed	Yds. haul- ed	L cov- ered	Miles	Miles	Wood	Stone Conc.	Metal	Clay Sur- facing	No.	Description	
.....	40	2.00	1514.5	32.00	66 5	..... Cov	..... ere d	.....	7	New.....	4200 lin. ft. guard rail.
									9	Repaired....	1749 c.y. cut and fill.
									10	Repainted....	155 c.y. rock fill.
									1	Temporary..	
1056	2093	2.5	54884	21.75	170	3	301	115619.55	16	.....	43978 c.y. cut and fill.
Repairs									5	Repaired....	38 c.y. rock fill. 1185 c.y. rock cut.
											223.18 c.y. rip rap.
											10800 lin. ft. 6" tile drain placed.
			2327.25	5.625	299	64	1	.....	21	New.....	37859 c.y. cut and fill.
Repairs									8	Repaired....	20 c.y. rock cut.
			683.15	26.0	150	4	.....	.....	7	New.....	35541 c.y. cut and fill.
Repairs									16	Repaired....	9532 c.y. rock cut.
	240	0.10	543.30	157.80	38	5	.....	.....	3	New.....	13828 c.y. cut and fill.
									2	Repaired....	1145 c.y. rock cut and fill
											32 c.y. stone fill.
3650	5230	11.0	1721.87	.....	51 New	5	26	.....	3	New.....	8479 c.y. cut and fill.
Repairs	Repaired				11	Rep	aire d		1	Repaired....	2620 c.y. rock cut.
			99.30	120.3	18	26	5	.....	2	New.....	325 c.y. rip rap.
Repairs	as often	as req	.....	.....					1	Repaired....	723 c.y. rock fill.
											13521 c.y. cut and fill.
											145 c.y. rock fill.
											193 c.y. rock cut.
											75 lin. ft. rip rap.
			2754.45	.....	222	2	24	.....	13	New.....	94338 c.y. cut and fill.
									1	Repaired....	4110 c.y. rip rap.
									2	Repainted....	7332.5 c.y. rock cut.
											4754 c.y. rock fill.
Repairs			968.25	.....	201	2	.....	.....	14	New.....	45487 c.y. cut and fill.
									5	Repaired....	252 c.y. rock cut.
											1233 c.y. rock fill.
											6775 c.y. cut and fill.
			4284.0	.....	65	.....	2	.....	11	New.....	
									4	Repaired....	
Repairs	as often	as req	43.0	43.00	3	1	.....	.....	5	Repaired....	90 c.y. earth fill.
			549.	21.50	19	62	2	.....	11	New.....	
									4	Repaired....	3000 c.y. fill.
									4	Repainted....	81 c.y. rock fill.
Repairs	as often	as req	111.25	120.50	8	4	17	.....	2	New.....	2778 c.y. cut and fill.
									10	Repaired....	60 c.y. rock cut.
											2223 c.y. rock fill.
.....	12922	.....	867.47	86.0	186	146	8	.....	19	New.....	120865 c.y. cut and fill.
									5	Repaired....	7270 c.y. rock fill.
											5130 c.y. rock cut.
											133 c.y. rock rip rap.
											17000 lin. ft. weeping tile.
.....	8063	5.25	95.25	40.0	77	2	325	1184	17	New.....	37817 c.y. cut and fill.
Repairs									11	Repainted....	3164 c.y. rock fill.
									30	Repaired....	2763 c.y. rock cut.
									1	Partially com- pleted.	
									1	Scow & piers	556.5 c.y. rip rap.
Repairs			17110.88	674.47	1589	326	711	116803.55	146	New.....	466105 c.y. cut and fill.
									106	Repaired....	19786 c.y. rock fill.
4706	28588	9.85							27	Repainted....	302325 c.y. rock cut.
		11.00	Repaired						1	Temporary..	
									1	Scow & piers.	
									1	Partially completed.	5423.3 c.y. rip rap.
											27800 lin ft. weeping tile drain placed.

Appendix No. 39

46 Richmond Street West,
TORONTO, January 6th, 1925.

*The Honourable James Lyons, Minister of Lands and Forests,
Parliament Buildings, Toronto, Ont.*

DEAR SIR,—I have pleasure in presenting herewith a report of the operations of this Department to the end of October, 1924.

All applications for loans received careful consideration. Advances in the shape of loans being made on the security of actual improvements to land.

You will note, with pleasure, the manner in which payments of interest have been met by the settlers, which from the statement you will see amounts to 91.12 per cent. of interest due.

Settlers have frequently referred to the help the loan has been to them, enabling them to remain on their lots, making improvements.

All of which is respectfully submitted.

Yours very truly,

(Sgd.) F. DANE,
Settlers Loan Commissioner.

MEMORANDUM OF LOANS TO SETTLERS TO OCTOBER 31st, 1924

APPLICATIONS

Total number of applications received to October 31st, 1923.....	4,485	
Year ending October 31st, 1924.....	511	
		4,996
Total amount applied for.....	\$1,954,460	00
Average per application.....	391	20
Amount applied for under applications which were approved.....	1,326,420	00

LOANS

Number of loans issued.....	3,222	
Equal to 64% of applications.		
Amount granted.....	\$1,061,025	00
Equal to 54% of total amount applied for and equal to 80% of total amount applied for under applications which were approved.		
Average loan.....	329	30
Total acreage covered by liens.....	492,500	
Acreage improved land.....	74,355	
Equal to 15% of total acreage.		
Average loan per acre on total acreage.....	\$2	15
Average loan per acre on acreage improved land.....	14	26

MEMORANDUM OF LOANS TO CREAMERIES AND OTHER LIKE ASSOCIATIONS TO OCTOBER 31st, 1924

APPLICATIONS AND LOANS

The Sudbury Co-operative Creamery Co., Ltd.	\$24,000 00
The Kenora Dairy Co-operative Association, Ltd.	13,000 00
Producers Co-operative Creamery Co., Ltd., Lavallee, District of Rainy River.	3,500 00
Total	\$40,500 00

NOTE:—The Sudbury Co-operative Creamery Co., and the Producers Co-operative Creamery Co., of Lavallee, are in active operation and have promptly paid the amounts falling due on their loans.

The Kenora Dairy Co-operative Association failed to operate successfully, and went into liquidation on March 8th, 1922, having failed to pay any portion of their loan or interest.

The land was deeded to the Crown on December 30th, 1922, and registered in Land Titles Office at Kenora on January 2nd, 1923, as No. 5882, also Bill of Sale covering chattels on January 3rd, 1923, as No. 919, by the Clerk of the District Court at Kenora.

On instruction, the land, building and equipment was handed over to, and placed under the jurisdiction of the Northern Development Branch as of date November 1st, 1923, the property to be utilized by that branch for their storehouse and other purposes in connection with their road construction.

The standing of the account as at November 1st, 1923, was as follows:—

Principal	\$13,000 00
Accrued interest	1,644 00
Total	\$14,644 00

Some material was sold and partly paid for, leaving balance of account as at October 31st 1924, to be \$14,405.25 and there is an amount of \$750 due by the Dryden Clover Belt Creamery Co., collection of which is receiving attention.

REPAYMENTS

ON ACCOUNT OF INTEREST

	Accrued interest Due	Interest received	Per cent.
Loans to settlers.	\$193,505 82	\$176,340 73	91.12
Loans to creameries.	6,584 06	5,178 81	78.65

ON ACCOUNT OF PRINCIPAL

	Payments on Principal due	Principal Received	Per cent.
Loans to settlers.	\$492,509 50	\$413,313 99	83.92
Loans to creameries.	466 67	10,466 67	.....

TOTAL

	Payments due	Payments received	Per cent.
Loans to settlers.	\$686,015 32	\$589,654 72	85.95
Loans to creameries.	7,050 73	15,645 48	.....
Totals.	\$693,066 05	\$605,300 20	87.33

DETAILS OF LOANS ISSUED AND OUTSTANDING

District	Issued		Outstanding	
	No. of Loans	Amount	No. of Loans	Unpaid Principal and Accrued Interest
Algoma	121	\$39,360 00	101	\$30,087 53
Kenora	339	123,020 00	266	88,146 54
Manitoulin	14	5,750 00	13	4,750 14
Nipissing	173	61,620 00	152	42,806 16
Rainy River	245	81,775 00	177	45,428 46
Sudbury	190	94,810 00	167	68,245 72
Temiskaming	1,423	456,935 00	1,008	273,066 96
Thunder Bay	720	238,255 00	582	143,783 17
Totals	3,225	\$1,101,525 00	2,466	\$696,314 68

Appendix No. 40

REPORT OF THE FORESTRY BRANCH, 1924

SIR,—The report of the work of this Branch for the year ending October 31st, 1924, is given under the sections of Forest Fire Protection, Air Operations, Reforestation, Forest Investigation and Forest Pathology.

I. FOREST FIRE PROTECTION

(1) *Legislation*

A Bill was passed in 1924 making several amendments to the Forest Fires Prevention Act of 1917 which briefly are as follows:—

1. The close season for the setting out of fire is extended from the fifteenth to the first day of April.

2. Officers of the Department have the right to summon assistance for the purpose of controlling and extinguishing any forest fire.

3. The unauthorized destruction of, injury to, or removal of any equipment placed for forest fire protection purposes is unlawful.

4. Owners of property are required to protect their property against injury by fire, and in addition to a penalty for failure to do so are made liable for any expenses incurred by the Department in so protecting their property.

5. The destruction of inflammable debris resulting from right-of-way clearing, or from any operations within three hundred feet of the right-of-way of any railway, or within three hundred feet of camps, mines, saw mills, portable or stationary engines using fuel other than oil and located within one-half mile of any forest or woodland, is made compulsory.

6. The accumulation of inflammable debris within one-half mile of any village, town or city is made prohibitive, as well as the felling of trees or brush in such a manner that debris would be created on land not owned by the person causing the felling.

7. The Lieutenant-Governor in Council is given the right to define any forest area within any fire district as a travel permit area and require any person wishing to enter such area during the close season to previously obtain a permit, excepting only those holding a hunting, guide's, fishing or mining license. These latter persons, however, are required to produce their license whenever requested by a fire ranger and to state their proposed routes of travel and camping sites.

Persons using or travelling in any forest area are also required to furnish to fire rangers when requested their address, routes to be followed, location of camps and any other information pertaining to forest fire protection.

8. A penalty of not less than \$25.00 and not more than \$300.00 is provided for violation of any of the above. Also every person who violates any provision of the Act is, in addition to any other penalty, liable to imprisonment for a period not exceeding ninety days.

Two further changes in the present legislation seem desirable; (1) That subsection two of section seventeen be so amended that any unauthorized person tampering with any Forestry Branch telephone lines be guilty of an offence; (2) That in clause six of the Regulations, the words "during the close season" be eliminated.

(2) Organization and Personnel

The Western Inspectorate, under the supervision of a Forest Supervisor with headquarters at Port Arthur, was divided into six Chief Ranger Districts; C.G.R. Western with headquarters at Sioux Lookout; C.G.R. Central with headquarters at Armstrong; Kenora with headquarters at Kenora; Rainy River with headquarters at Fort Frances; Thunder Bay with headquarters at Port Arthur, and Nipigon with headquarters at Macdiarmid.

The Cochrane Inspectorate, under the supervision of a Fire Inspector with headquarters at Cochrane, was divided into eight Chief Ranger Districts; C.G.R. Eastern with headquarters at Nakina; Hearst with headquarters at Hearst; Kapuskasing with headquarters at Kapuskasing; Cochrane with headquarters at Cochrane; Abitibi with headquarters at Lowbush; Matheson with headquarters at Matheson; Timmins with headquarters at Timmins; New Liskeard with headquarters at Englehart.

The Soo Inspectorate was under the direct supervision of a District Forester, with headquarters at Sault Ste. Marie, who was assisted by one Forestry Assistant and one Fire Inspector, the latter having his headquarters at Oba. The inspectorate was divided into six Chief Ranger Districts; Longlac with headquarters at Longlac; Oba with headquarters at Oba; Franz with headquarters at Franz; A.C.R. with headquarters at Sand Lake; Blind River with headquarters at Blind River, and Mississagi South with headquarters at Kendiogami Lake. The Longlac Chief Ranger District was previously in the Western Inspectorate.

The Sudbury Inspectorate with headquarters at Sudbury was under the direct supervision of a District Forester who was assisted by two foresters, one in charge of the North Bay Chief Ranger District and one in charge of the Sudbury North and South Chief Ranger Districts, and by one Forestry Assistant and two Fire Inspectors. There were eleven Chief Ranger Districts in the inspectorate; Foleyet West with headquarters at Elsas; Foleyet East with headquarters at Gogama; Mississagi West with headquarters at Chapleau; Mississagi East with headquarters at Biscotasing; Webbwood with headquarters at Nairn; Sudbury North with headquarters at Skead; Sudbury South with headquarters at Sudbury; North Bay with headquarters at North Bay; Timagami West with headquarters at Mattagami Post; Timagami North with headquarters at Elk Lake, and Timagami East with headquarters at Timagami.

The Georgian Bay Inspectorate with headquarters at Parry Sound was directly supervised by a District Forester assisted by one Forestry Assistant. The Inspectorate was divided into three Chief Ranger Districts instead of two as in previous years; Georgian Bay West with headquarters at Parry Sound; Georgian Bay East with headquarters at Powassan, and Georgian Bay South with headquarters at Dorset.

The Algonquin Inspectorate was under the direct supervision of a District Forester assisted by a Forestry Assistant, the headquarters being at Pembroke. There were two Chief Ranger Districts, Algonquin North with headquarters at Pembroke and Algonquin South with headquarters at Brulé Lake.

The Trent Inspectorate with headquarters at Tweed was directly supervised by a District Forester assisted by one Forestry Assistant. There was only one Chief Ranger District, Trent, with headquarters at Dacre.

The total field supervisory staff for the seven inspectorates, which were divided into thirty-seven Chief Ranger Districts, consisted of twelve technical Foresters, one Forest Supervisor, four Fire Inspectors, thirty-seven Chief Rangers, and eighty-nine Deputy Chief Rangers. This allowed direct supervision of one Chief or Deputy Chief Ranger to every seven rangers.

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 64; May, 530; June, 808; July, 811; August, 793; September, 546; October, 57. The largest number of men on duty at any one time, including 126 Chief and Deputy Chief Rangers, was 820.

Including the Chief and Deputy Chief Rangers there were twenty-two men on duty on the first day of April. By the 15th of the month the number had increased to sixty, and by the first of May to 215. On the 15th of May the total number was 525; on the first of June, 756; on the 15th of June, 810; on the first of July, 812; on the 15th of July, 813; on the first of August, 806; on the 15th of August, 792; on the first of September, 745; on the 15th of September, 626. During the latter part of September it was possible to discontinue the patrols in a number of the outlying districts, so that by the end of the month the total number of men on duty had been reduced to 264. Warm dry weather was experienced during the most part of the month of October, but the number of men kept on duty in the ground organization together with the air patrol were able to handle this situation and no serious fires occurred.

The staff of Chief and Deputy Chief Rangers during the season included a number of exceptionally efficient and reliable men, men of a type difficult to obtain for temporary employment. If a skeleton staff is built up composed of these men whereby they can be given reasonable assurance of yearly employment, the efficiency of the protective organization can be greatly increased at very little increased expenditure. There would be no lack of employment for such a staff during the winter months.

(3) CLASSIFICATION OF EXPENDITURE

Item	1924	1923	1922	1921	1920	1919	1918
Pay roll.....	\$480,481 98	\$535,810 35	\$417,023 88	\$433,463 02	\$398,919 61	\$405,212 30	\$416,500 00
Equipment.....	139,894 00	127,186 92	44,504 49	28,384 40	22,287 83	22,899 02	28,350 00
Expendable equipment.....	4,646 75	5,869 55	3,048 16	19,505 86	16,589 99	13,903 06	10,700 00
Travel (inspection).....	32,797 35	31,436 73	23,088 33	21,034 95	17,495 93	15,826 37	13,440 00
Improvement work.....	61,427 30	54,876 42	40,999 77	3,621 06	1,591 01	4,765 35	4,280 00
Extra fire fighting.....	16,450 78	143,508 13	40,969 67	65,267 79	41,491 24	58,863 92	1,445 00
Express, postage, etc.....	33,818 69	28,083 20	9,561 17	7,926 65	5,401 02	5,646 47	5,365 00
Air operations.....	.....	86,404 71	23,437 84	.....	.....	.....	.....
Repairs, upkeep, etc.....	28,877 18	7,419 24	17,670 45	.....	.....	.....	.....
Miscellany.....	8,921 53	15,328 44	23,598 77	31,331 01	2,331 08	5,955 02	6,054 78
Gasoline and oil.....	40,527 77	7,485 69	.....	.....	.....	.....	.....
Rent.....	7,206 91	5,251 41	.....	.....	.....	.....	.....
Brush-burning.....	.....	229 00	.....	.....	.....	.....	.....
Advertising.....	.....	14,066 45	.....	.....	.....	.....	.....
Totals.....	\$855,050 24	\$1,062,956 24	\$643,902 63	\$610,534 74	\$506,107 71	\$528,071 51	[\$486,134 78

(4) Fires

While the snowfall during the winter of 1923-4 was heavy the snow disappeared fairly early in the spring and the weather was comparatively dry until well on towards the end of June. A total of seventy-nine fires were reported in April, the largest number on record, and by the end of June, 524 fires or sixty-two per cent. of the total for the season had been reported.

During the months of July, August and September the hazard was comparatively low due to the frequent and well distributed rains and to the high relative humidity.

The month of October and the first few days in November were quite warm and dry and a number of fires occurred, but the damage from these was small.

Taken as a whole the season was almost as abnormal for the low hazard as the previous season had been for the particularly high hazard.

CLASSIFICATION OF FOREST FIRES

BY MONTH

MONTH	1924	1923	1922	1921	1920	1919	1918
	No.	No.	No.	No.	No.	No.	No.
April.....	79	10	35	5	.....	.....	.....
May.....	197	462	280	296	422 ¹	362	294
June.....	248	374	194	290	309	414	273
July.....	119	283	77	475	142	613	124
August.....	61	154	212	97	300	377	268
September.....	50	22	121	105	114 ²	14	6
October.....	53	38	102	1	.....	.....	.....
November.....	44	.....	.....	.....	.....	.....	.....
Totals.....	851	1,343	1,021	1,269	1,287	1,780	965

¹April and May.²September and October.

BY ORIGIN

ORIGIN	1924		1923	1922	1921	1920	1919	1918
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Settlers.....	131 [✓]	15.4	12.7	16.1	9.6	11.0	7.7	8.1
Campers.....	140 [✓]	16.5	12.4	11.9	8.8	11.7	9.2	9.7
Railways.....	140 [✓]	16.5	18.5	16.3	14.8	23.9	37.0	46.5
Lightning.....	28 [✓]	3.3	5.5	5.1	11.0	1.1	3.0	3.8
Logging operations.	61	7.1	4.3	4.1	5.0	4.6	2.5	4.1
Miscellaneous.....	77	9.0	5.7	.8	1.1	7.2	4.3	4.6
Unknown.....	274	32.2	40.9	45.7	49.7	40.5	36.3	23.2
Totals.....	851	100.0	100.0	100.0	100.0	100.0	100.0	100.0

BY SIZE

SIZE	1924		1923	1922	1921	1920	1919	1918
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Quarter acre and under.....	264	31.0	15.1	23.7	20.8	23.2	30.5	40.5
Over quarter to 5 acres.....	299	35.1	26.1	29.1	24.0	29.4	27.7	33.7
Over 5 to 10 acres.....	57	6.7	8.4	6.3	6.8	8.1	6.1	6.0
Over 10 to 100 acres.....	151	17.8	19.8	19.2	20.4	17.1	16.5	13.6
Over 100 to 500 acres.....	50	5.9	14.3	12.6	13.3	12.0	8.7	5.1
Over 500 acres.....	.....	.....	.....	.....	.....	.....	.....	1.1
Over 500 to 1,000 acres.....	12	1.4	5.0	3.6	5.5	5.0	3.3	.....
Over 1,000 to 10,000 acres.....	13	1.5	8.4	4.9	8.1	4.9	5.9	.....
Over 10,000 acres.....	5	0.6	2.9	.6	1.1	.3	1.3	.....
Totals.....	851	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Settlers were responsible for 131 fires or 15.4 per cent. of the total, a slight increase over the previous season.

Campers, by which is meant berrypickers, picnickers, tourists, trappers, Indians and prospectors, were charged with 140 fires or 16.5 per cent. of the total, also an increase over the previous season.

Railways are known to have caused 140 fires or 16.5 per cent. of the total, the same number as charged to campers. Due to the splendid co-operation received from the railway companies, however, the fires due to railway agencies burned over a very small area.

The fires of railway origin were distributed as follows:—

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS

RAILWAY	1924	1923	1922	1921
Canadian National Railways (exclusive of northern line) . .	3.3	6.2	*3.2	*3.7
Canadian Pacific Railway	2.0	5.3	2.7	3.9
Canadian National Railways (northern transcontinental line only)	0.5	2.0	2.4	1.8
Temiskaming and Northern Ontario Railway	3.7	7.3	7.3	6.3
Algoma Eastern Railway	8.2	1.1	4.5	5.9
Algoma Central and Hudson Bay Railway	4.5	3.0	4.2	0.6
	2.7	4.9	3.3	3.7

*Former C.N.R. and G.T.R. figures combined.

RAILWAY	Per cent. of Total Number of Railway Fires					
	1924	1923	1922	1921	1920	1919
Canadian National Railways (exclusive of northern line)	50.3	45.9	*36.1	*47.9	*36.4	*28.1
Canadian Pacific Railway	21.9	32.5	25.3	29.8	27.9	26.3
Canadian National Railways (northern transcontinental line only)	3.0	7.6	13.3	7.9	16.4	25.9
Temiskaming and Northern Ontario Railway	8.8	9.6	14.5	10.6	9.9	17.9
Algoma Eastern Railway	5.1	.4	2.4	2.8	5.0	0.3
Algoma Central and Hudson Bay Railway	10.9	4.0	8.4	1.0	4.4	1.5
	100.0	100.0	100.0	100.0	100.0	100.0

*Former C.N.R. and G.T.R. figures combined.

Lightning is known to have caused twenty-eight fires or 3.3 per cent. of the total.

Logging operations were responsible for sixty-one fires or 7.1 per cent. of the total.

Miscellaneous known causes were responsible for seventy-seven fires or 9.0 per cent. of the total.

Fires of unknown origin numbered 274 or 32.2 per cent. of the total. As the efficiency of the protective organization increases the percentage of the total number of fires charged to unknown causes should decrease.

A total of 851 fires were reported with an area burned of 146,017 acres. Of this total area, 101,739 acres or 69.6 per cent. were in the Western Inspectorate.

Of the 851 fires, 563 or 66.2 per cent. were confined to areas of five acres or less in extent, 90.6 per cent. to areas of 100 acres or less, and 96.5 per cent. to areas of 500 acres or less. While the low hazard unquestionably affected the

number of fires and the total area burned great credit is due to the field staff for the efficient manner in which the fires which did start were handled.

CLASSIFICATION OF BURNED-OVER AREA

FOREST CONDITIONS	1924		1923	1922	1921	1920	1919	1918
	Acres	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land	30,660	21.0	28.0	13.4	13.2	14.7	26.8	19.1
Cut-over land (some timber left)	23,146	15.9	14.7	20.2	25.2	38.8	37.0	39.2
Young growth (below six inches)	47,668	32.6	36.6	25.2	20.2	26.7	23.5	19.5
Barren and grass land	44,543	30.5	20.7	41.2	41.1	19.8	23.7	22.2
Totals	146,017	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The area of timber land burned over was 30,660 acres or 21.0 per cent. of the total area burned, as is shown in the above table.

Cut-over land formed 15.9 per cent. of the total area burned, and land upon which young growth existed, 32.6 per cent., or a combined area of 70,814 acres. The seriousness of fires on these two classes of land can not be too strongly emphasized, because of the effect on our future timber crop.

Barren and grass land burned over totalled 44,543 acres or 30.5 per cent. of the total area burned.

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1924

INSPECTORATE	Number of fires	Timber land, mainly coniferous, i.e., softwood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
Western.....	160	18,380	5,614	6,334	1,642	22,634	11,608	34,828	699	101,739
Cochrane.....	46	1	1	229	7	5,839	331	856	1	7,265
Soo.....	75	60	3	468	232	4	547	1,940	46	3,300
Sudbury.....	328	159	6	141	47	354	1,242	828	965	3,742
Georgian Bay.....	77	362	907	253	2,041	30	967	210	380	5,150
Algonquin.....	88	5,021	.....	339	4,617	2,735	599	3,324	70	16,705
Trent.....	77	84	62	3,325	3,471	164	614	367	29	8,116
Total.....	851	24,067	6,593	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 totals.....	1,343	576,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
1922 ".....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
1921 ".....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 ".....	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 ".....	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 ".....	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 ".....	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

(5) *Permits*

A total of 7,602 permits were issued during the season, covering an area of 36,025 acres, as compared with an average of 6,620 permits covering 30,335 acres for the seasons 1917 to 1923, inclusive. In some districts, little burning was done due to the wet weather. Considerable clearing and slashing, however, was carried on and the brush and debris piled to be burned this coming season.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits							
	1924	1923	1922	1921	1920	1919	1918	1917
Cochrane.....	1,815	1,480	2,497	1,503	1,982	2,275	3,493	.....
Matheson.....	1,275	1,122	2,126	1,599	1,887	1,691	2,346	.....
New Liskeard.....	408	361	.....	916	1,169	1,557	2,179	.....
Hearst.....	1,011	1,000	1,774	1,082	756	702	514	.....
Timmins.....	580	406	754	407	193	199	651	.....
Kapuskasing.....	668	531	.....	.....	.....	.....	.....	.....
Kenora.....	128	362	.....	.....	.....	.....	.....	.....
Rainy River.....	16	216	.....	.....	.....	.....	.....	.....
All other districts..	1,701	429	1,452	459	167	211	407	.....
Totals.....	7,602	5,907	8,603	5,966	6,154	6,635	9,590	3,486

MONTH	Number of Permits							
	1924	1923	1922	1921	1920	1919	1918	1917
April.....	127	.....	.....	.....	.....	.....	.....	.....
May.....	849	2,131	1,992	1,154	1,003	1,536	2,248	.....
June.....	3,614	711	3,034	3,085	2,011	2,786	2,899	.....
July.....	1,388	1,314	1,502	364	891	496	2,050	.....
August.....	1,093	1,077	1,580	1,329	1,620	1,475	2,156	.....
September.....	528	566	495	34	629	342	237	.....
October.....	3	108	.....	.....	.....	.....	.....	.....
Totals.....	7,602	5,907	8,603	5,966	6,154	6,635	9,590	3,486

DISTRICT	Acreage Burned Over Under Permit							
	1924	1923	1922	1921	1920	1919	1918	1917
Cochrane.....	4,010	4,348	8,108	4,652	4,984	5,437	10,267	.....
Matheson.....	4,573	5,027	7,613	5,442	5,427	4,760	7,371	.....
New Liskeard.....	1,345	1,160	.....	7,726	9,768	13,521	17,863	.....
Hearst.....	2,311	2,335	3,837	2,124	1,478	1,379	1,134	.....
Timmins.....	1,421	918	2,591	988	424	925	1,971	.....
Kapuskasing.....	2,351	2,126	.....	.....	.....	.....	.....	.....
Kenora.....	325	35,006	.....	.....	.....	.....	.....	.....
Rainy River.....	57	1,374	.....	.....	.....	.....	.....	.....
All other districts..	19,632	2,490	7,306	2,746	686	768	1,072	.....
Totals.....	36,025	54,784	29,455	23,678	22,767	26,790	39,683	15,186

(6) *Equipment*

The most important equipment purchased during the season was a total of fifty-six portable fire fighting units and 129,000 feet of unlined linen hose for use with these units. Two old units were also replaced with new ones. The total number of portable units now in use is 140 with an average of 2,000 feet of hose for each.

These units have proved to be the most important single factor in combating forest fires and too much cannot be said in their favour. Along with these, a small hand pump was used most effectively.

Other equipment purchased included fifty tents, three power pointers, seven canoes, two railway motor cars and eleven light motor trucks. In addition, one motor boat of the open cruiser type was built by the Chief Ranger at Timagami for use on Lake Timagami.

(7) *Locomotive Inspection*

Two men were again employed throughout the season on the inspection of fire protective appliances on locomotives operating on railways under the jurisdiction of the Dominion Board of Railway Commissioners, these men acting under appointments as officers of the Board.

A total of forty-eight round houses and gravel pits were visited periodically, and 1,920 locomotive inspections made, covering 875 locomotives. In addition, seventeen inspections were made of locomotives operated by lumber companies, bringing the total number of inspections up to 1,937. The percentage of locomotives found defective and operating on lines under the jurisdiction of the Board of Railway Commissioners was 1.6 per cent., a decrease from 32.1 per cent. in 1918 as shown in the following table:—

LOCOMOTIVE INSPECTION, 1924

RAILWAY	Number Inspected		Total No. Locomotives										Total Number Inspections							Inspections Showing Defects	Percentage Defective							
			Times																									
	1	2	3	4	5 and over	1924	1923	1922	1921	1920	1919	1918	1917	1924	1924	1923	1922	1921	1920	1919	1918	1917						
C.P.R.....	169	109	68	35	23	404	851	860	815	723	660	499	448	328	15	1.9	2.3	5.8	8.3	18.8	29.9	36.4	19.5					
C.N.R.....	165	122	72	38	42	439	1,001	856	681*	740*	577*	472*	416*	214*	15	1.5	2.7	3.5*	5.7*	6.4*	13.3*	25.0*	34.1*					
A.C. & H.B.R.	4	6	7	2	.....	19	45	29	45	35	25	23	36	37	.....	.....	.....	.....	.....	.....	.....	.....	.....
A.E.R.....	2	3	1	1	.....	7	15	15	22	28	26	18	20	36	.....	.....	.....	.....	.....	.....	.....	.....	.....
N.C.R.....	4	2	.....	.....	.....	6	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	344	242	148	76	65	875	1,920	1,760	1,563	1,526	1,288	1,012	920	615	30	1.6	2.5	4.6	8.3	12.8	21.8	32.1	28.3					

Average cost per inspection: 1924, \$1.80; 1923, \$1.88; 1922, \$1.61; 1921, \$1.70; 1920, \$1.86; 1919, \$2.07; 1918, \$2.59.

*Former C.N.R. and G.T.R. figures combined.

(8) Improvements

Considerable improvement work was carried out during the season, the most important of which was the construction of fourteen ranger cabins, five storehouse, three garages, two boat-houses, three chief ranger cabins, three chief ranger offices, three bunk houses, two gas and oil houses, fourteen steel lookout towers, twenty-one wooden lookout towers and 191.5 miles of telephone line. In addition, 128.5 miles of temporary telephone line was laid out in the spring and lifted in the fall, and the usual work of cleaning out trails and portages was carried out.

SUMMARY OF PERMANENT IMPROVEMENTS

Inspectorate	Cabins	Store-houses	Garages	Boat-houses	Other Buildings	Steel Towers	Wooden Towers	Telephone lines, miles
Western.....	52	6	3	2	.....	.....	20	194
Cochrane.....	39	6	5	2	.....	.....	19	11
Soo.....	37	6	4	1	11	3	17	11.5
Sudbury.....	94	10	6	2	1	10	34	214
Georgian Bay.....	9	5	.....	.....	.....	8	1	58
Algonquin.....	28	3	2	2	.....	3	24	289
Trent.....	8	1	1	.....	.....	7	6	50
Totals.....	267	37	21	9	12	31	121	827.5

II. AIR OPERATIONS

During the past year, Ontario has undertaken flying operations as a provincial service. This work was placed in the Forestry Branch and Mr. W. R. Maxwell appointed as director to take charge of the operations. Following is a summary of his report covering the first season's operations.

Organization:

Enrolment of operating personnel commenced April 1st, 1924.

After a very careful survey of the vast area of the Province to be patrolled, it was decided to divide the Province into two districts, the *east* and the *west*, with Lake Nipigon the dividing line.

The eastern district extended south to Lake Nipissing, the northern extremity of Algonquin Park to the Ottawa River and east to the Province of Quebec.

The western extended from Nipigon Lake to the Manitoba boundary.

The main operating base in the eastern section was established on Ramsay Lake, three miles from Sudbury, or just across the lake from the city. Re-fueling and sub-bases were established at points of vantage in the district, which permitted machines to patrol or cope with any remote operation.

In the western district, Sioux Lookout was selected as the base of operation and as on the east, sub-bases were established, permitting machines to land, re-fuel and carry on with patrol without loss of time or detour.

The Province divided into two units with gas and oil placed at strategic locations, permitted flexibility of control and eliminated unnecessary cross-country flying when patrols were required, so necessary to minimize the operating cost.

To meet a possible early fire hazard, arrangement was made for delivery of two machines to Toronto Bay, open water being available prior to break-up Ramsay Lake. Machines AOH and AOF arrived at Toronto Bay, April 24th and 26th. Thus with two machines, applicant pilots were tried out and pilots received instruction under rather trying circumstances as Toronto Bay did not lend itself to instructional flying, boat landings or practice flights, owing to an abundance of floating debris which was quite natural after winter break-up.

Upon receipt of news of Ramsay Lake being clear, machines were despatched to Ramsay Lake and instruction carried on there.

The patrol season began the last day of April and so instruction of personnel was somewhat delayed as the machines, two in number, were actively engaged on fire patrol.

Machines were late in delivery and with a hazard period following break-up in the east, machines upon arrival were immediately pressed into service to cope with the situation.

The last machine was delivered June 3rd. It was some days later than this ere Sioux Lookout, the western base, was functioning properly.

For supervision and maintenance of the operating main bases, Major G. A. Thompson was chosen superintendent of eastern flying district, and Captain J. R. Ross, superintendent of western flying district.

Pilots under their supervision were graduated according to their commercial flying experience, and were classified into senior pilots, junior A pilots, and junior B pilots, under instruction.

Air engineers were also graduated according to service, as follows: 1st-class air engineers, 2nd class engineers, and 3rd class engineers.

All flying in the Provincial Air Service to be according to Air Regulations 1920, and so, in accordance, all pilots and air engineers were instructed to comply strictly to rules and regulations of the R.C.A.F.

Six machines were allotted to each division and this was increased to seven later on in the season when two additional machines were purchased in the States, assembled at Sudbury operating base and put into service.

The duty of the Provincial Air Service was to have machines ready for patrol at all times, to supply the flying when and where requested.

The desire of the Provincial Air Service was to serve co-operatively with the ground forces as a detection and supervisory force.

Gas and oil was shipped in April to the various bases and sub-bases in the Province. Field shops were erected at Ramsay Lake, eastern headquarters, and at Pellican Lake, western headquarters. Proper tools were installed at these depots for the overhaul, assembly and test of engines. Spares were placed in stores for maintenance and replacements of machines and engines. After eighty hours flying, engines were overhauled. A shop foreman was placed in charge of ground engineers and under his practical supervision, all overhaul, repair and test was taken care of.

Late delivery of machines interrupted the operating schedule in May. It was not until June that the service was at full strength in each division.

Classification of flying operation is as follows: Fire patrol, fire-fighting, suppression; sketching, photography, instruction, tests, cross-country, remote transportation, special flights.

Forced landings, thirty-three in number, were attributed to light gear trouble, faulty valves, leaky cylinders and other mechanical break-downs, necessitating landings, the repairs of which did not permit completion of patrol within schedule time limits.

Worthy of mention is the fact that 899 patrols were requisitioned; of this number, 866 were completed on schedule time and without incident, which shows a machine efficiency of 96.329 per cent.

The total number of hours flown was 2,597.

Due to the fact that operations in the east commenced in April, and that all instruction, wireless and other test flights were carried out there, the eastern division shows 400 hours more flying than in the west.

Exclusive of landings participated in for instructional and test purposes, machines of the service made 1,325 landings during the operating season. In view of the fact that fifty per cent. of these landings were made in uncharted waters, it is worthy of mention to note the small number of cases of hull damage. The greater damage in this connection could in no way be attributed to improper handling by air service personnel.

1. Careless salvage of damaged hull, Toronto Bay.
2. Two machines torn away from mooring severe gale Nipigon lake.
3. The remainder of minor importance with practically nil replacement requirements.

As requisitions for fire patrol predominate the majority of flying was done in this connection.

Fires detected from the air—597.

Hours flown—1,505 hours and 03 minutes.

Area covered—2,865,608 square miles or 1,833,989,120 acres.

Forty-two hours and fifty-one minutes (42 hrs. 51 mins.), were flown on actual suppression duty. Machines were requisitioned on fourteen occasions. Each flight was carried out to schedule as per the instructions of the District Forester or Inspector concerned

Three hundred and sixty-four hours and thirty-five minutes (364 hrs. 35 mins.) were flown on sketching and aerial survey. Fifteen hundred square miles of aerial type survey was accomplished. These machines were available for sketching only when the fire hazard permitted

Forty-seven hours and thirty minutes (47 hrs. 30 mins.) were flown on photographic survey. An area of seven hundred and fifty square miles was photographed. Machines were allotted to this operation late in the season, and this, combined with the poor weather conditions prevailing, greatly curtailed the photographic programme.

Seventy-four hours and thirty minutes (74 hrs. 30 mins.), were flown on instruction. Eighteen (18) applicant pilots were tested, twelve (12) of whom demonstrated their flying ability sufficiently to justify further instruction. Eleven pilots with no previous experience on flying boats, graduated from the Provincial Air Service School of Instruction, and passed the necessary R.C.A.F. regulations and tests. One Junior B pilot is still under instruction at the present time, fulfilling the requirements with regard to practical knowledge of engines and aircraft.

Sixty-seven hours and thirty-seven minutes (67 hrs. 37 mins.) were flown for test purposes under the following headings: engine tests, machine tests, wireless tests, weather reports and test.

Three hundred and ninety hours and forty-two minutes (390 hrs. 42 mins.) were flown on cross-country. This includes all flights participated in from Sudbury to the various operating bases and return to Sault Ste. Marie. It also includes hours flown in looking for machines which had not reported to their respective bases on schedule time, taking in spares and other general assistance in connection with forced landings

The service rendered to the Department of Health in the transportation of Doctor Cockburn converted what is usually a seven-day journey (in addition to delays generally encountered with a lady travelling, weather conditions, etc.), into a short air trip of but a few hours

Reference is made to the hours requisitioned by the Forestry Branch, totalling 2,291 hours and 43 minutes. This time includes transportation to and from the bases and omits all flying spent on tests, instruction, special flights, and cross-country, in connection with forced landings and change of engines.

With reference to the number of hours flown by machines on operations, in all two thousand five hundred and ninety-seven hours (2,597) were flown.

The difference between the total number of hours flown by the machines, and the total number of hours run by the engines, is accounted for by cross-country engine flying time on delivery from Three Rivers to Sudbury, and bench tests.

In conclusion, I take great pleasure in commending every member of the Provincial Air Service for their devotion to duty at all times. During serious fire hazards and in times of stress, the personnel worked of their own accord from daylight to dark. On several occasions during storms they were up at all hours of the night safeguarding the machines, often at considerable risk to themselves.

It is with very sincere regret that in this, my first annual report, I have to include reference to the sad accident which occurred in the western half of the Province, on August 16th, 1924,

Two of the personnel, Mr. McBride, Junior Pilot B, and Mr. Gilbert, Forester Observer, lost their lives, and Mr. Burton, the pilot, was seriously injured.

The accident marred an otherwise successful season's operations, and the deaths of the airmen were keenly felt and deplored by every member of the air service, who tender their most respectful sympathies to the bereaved families.

No blame, however, can be attached to the pilot or any member of the air force personnel. Reference is made to the R.C.A.F. finding.

Flying Requisitioned by Forestry Department

Fire-fighting.....	42.51
Fire Patrol.....	1,505.03
Sketching.....	364.35
Photography.....	47.30
Cross-country.....	264.49
Remote transportation.....	84.55

Total2,291 hrs. 43 mins.

The above is flying time actually requisitioned by the Forestry Department including transportation to and from bases, and omits all flying spent on tests, instructions, special flights and cross-country in connection with forced landings and change of engines.

Total Flying Times

	Hrs.	Mins.
Fire-fighting.....	42	51
Fire patrol.....	1,505	03
Sketching.....	364	35
Photography.....	47	30
Tests.....	67	37
Instruction.....	74	30
Cross-country.....	390	42
Remote transport.....	84	55
Special flights.....	19	17

Total.....2,597 hours.

In order to utilize the aircraft service to the best advantage, it was found advisable to have a forest officer in charge. Flying time was required for forest fire patrol, forest fire supervision, forest mapping and photography and other minor uses. This work was under Mr. R. N. Johnston, of the Forestry Branch, and the following is a summary from his report.

Organization:

In order to operate a patrol over the whole fire district, it was decided to use two units, an eastern and western, with a common boundary at Longlac. In each of these units, a main base was established from which general supervision and control of all flying was maintained. Mechanical overhaul was also provided at these points, such overhaul being absolutely essential to the operation of the machines for the required number of hours.

The main base for the eastern patrol was located at Sudbury, this being a centre of distribution, a forest district headquarters, and had been found satisfactory during the previous season's operations.

The western patrol's main base was at Sioux Lookout, a fairly central point for the region, and one from which there had been some previous flying experience (1921).

In so far as possible, the eastern and western patrols were of equal importance, and were given the same amount of equipment and personnel, so that each was in itself competent to repair and operate its own machines. In each area there was, therefore, a head of the mechanical staff—the station superintendent—charged with the care and operation of the machines, and a Forestry Branch officer—observer-in-charge—whose duty it was to utilize flying to the best advantage on whatever forestry work was required.

Though provided with the same equipment and organization, the eastern and western patrols did not operate in a similar manner, due to differences in local conditions, fire hazard, communication, etc.

Detection:

(a) Western Patrols—In the western area only one machine was permanently operated away from the main base at Sioux Lookout, its headquarters being Orient Bay, on Lake Nipigon. This machine covered the Nipigon Forest Reserve, came as far east as Longlac, and as far south of the Reserve as Port Arthur and vicinity, an area of approximately twelve million acres.

The remainder of the western patrol extending from the western boundary of the Nipigon patrol to Manitoba, between the Minnesota boundary and the Lake St. Joseph-Lac Seul-English River waterway was patrolled from Sioux Lookout, comprising an area of some twenty-three million acres, or more than twice the area of the next largest patrol.

Detached machines in (a) the Quetico region, (b) Minaki, and (c) possibly in the neighbourhood of Collins could have covered this area much more effectively with the same amount of flying time, but such operation of machines was found to be only practicable, due to lack of mail and telegraph services, as an emergency measure.

Communication in Sioux Lookout was particularly difficult due to the camp being located at some distance from the town. Early in the season, a telephone line to connect with the telegraph office was constructed up to the C.N.R. yard limits, but although negotiations for authority to carry this line over the company's property began before construction of the line, it was not until the operating season closed that permission to complete the line was granted. Under these conditions, and as it was not feasible to keep a runner on duty in the telegraph office continuously, delay in delivery and reply to telegrams was unavoidable. Outside of Sioux Lookout and throughout the western district generally, the lack of mail services on C.N.R. lines limits the dispatch of reports, maps, etc., to a tri-weekly service. Time is also lost whenever telegrams must be exchanged between the two telegraph systems—C.N.R. and C.P.R.

Radio communication from machines and sub-bases to Sioux Lookout, and from Sioux Lookout to rangers, would be of the greatest value in this region, and if proper equipment can be procured, should be provided for the coming season.

(b) Eastern Patrols—In the eastern area, three sub-bases and the Sudbury main base were operated continuously. These were equipped and located as follows: Amyot, two machines, between White River and Franz, on the main line of the C.P.R.; Como Lake, one machine, twelve miles west of Chapleau; Timagami, one machine, operating from Bear Island, Timagami; Sudbury, one machine, operating from Ramsay Lake (one or two machines under over-haul).

(1). The Amyot patrol covered as far west as Longlac between Lake Superior and the C.N.R., and extended south and east over the A.C.R. belt, and the northern part of the Mississagi Reserve. This patrol worked in connection with the northern division of the Sault Ste. Marie Inspectorate, whose headquarters were at Oba. The area covered by this patrol was approximately ten million acres.

(2). The Como Lake patrol was supplied by one machine and covered the area east of the A.C.R. belt, including the central and southern Mississagi, and as far north as the southern boundary of the clay belt. This patrol worked partly in the Sault Ste. Marie Inspectorate and partly in the Sudbury Inspectorate. The area covered by this patrol was approximately 7.6 million acres.

(3). The Sudbury patrol operated north up the main line of the C.P.R. and C.N.R. to join the Como Lake patrol and west along the Soo branch of the C.P.R. According to the condition of the machines, this patrol was supplied by one or two machines, and covered some of the most hazardous country in the patrol district. The area of the patrol was approximately ten million acres.

(4). The Timagami patrol covered the Timagami Reserve and extended as far north as the clay belt, north of Night Hawk Lake, and as far west as the C.N.R. belt covered by the Sudbury patrol. The area covered by this patrol was over seven million acres.

Survey:

(a) Sketching—Classification of timber by aerial observation was carried on in the country west of Lake Nipigon, where approximately 2,634,000 acres or forty-six per cent. of the allotted season's work were covered.

About 200 flying hours were used in this operation and bases flown from include Savanne, Allanwater, Nipigon House, Orient Bay and Port Arthur.

The season's sketching programme was not completed for a variety of reasons, amongst which might be mentioned the unusually rainy season, the necessity of training new men to the work and the attempted alternation of machines between aerial survey and fire detection. This scheme of transferring machines from one service to another as required and which superficially has many attractive features, was thoroughly tried during the past season.

As was suspected from some slight previous experience in 1923, it was found to be unsatisfactory, and also very wasteful of flying due to the loss in transference.

The Nipigon survey also showed that the preparation of a complete type map in advance of the commencement of ground estimation, as was the case with the eastern half of the watershed, makes a much more effective and cheaper survey possible.

Some of the factors contributing to these results being (1) the possibility, where a map is in existence, of picking good routes of travel and concentrating work on the more valuable timbered areas, (2) the possibility of laying out an intelligent time schedule of work and of properly apportioning supplies, etc.

There are also less briefly explainable, but none the less real savings, in the aerial end of the operation.

On the basis of this past season's work therefore, and also referring to all our previous experience it would seem advisable to confine estimation to country already mapped, and further, to plan survey work so that aerial type mapping may continuously keep a season in advance of ground estimation.

(b) *Photography*.—In addition to sketching there was also a beginning this season of survey based on photography. The system adopted is the one originated and developed by the Dominion Topographical Surveys Branch, and is generally known as the "distorted grid" system. It is a method whose results can be checked mathematically, and which in actual practice has produced very accurate results.

Properly developed by the Branch, it will, by supplying an accurate base map for aerial timber classification, eliminate one of the chief elements of cost and error in our present system of survey. If an organization to carry on this method could be assembled and put in working order by the Branch, prior to undertaking estimation in Patricia and other poorly-mapped sections of the Province, a great saving in time and money and a tremendous gain in accuracy and prestige would be effected. Such an organization need not be elaborate nor would the equipment cost be high, as compared to the value of the work done.

III. FOREST SURVEY AND INVESTIGATION

Report of the Nipigon Forest Survey, Eastern Portion.

1. *Area Surveyed*.—The tract surveyed during the first half of the summer season of 1924 lies east of Lake Nipigon to the watershed of that lake, and extends from the southern boundary of the Nipigon Forest Reserve to the Transcontinental Railway on the north.

The total area covered was 2,770 square miles, or 1,772,835 acres, all of which is Crown land, with the exception of approximately one-third of the townships of Purdom and Ledger, held under veteran claims.

2. *Object of Survey and Method*.—The object of the survey was to obtain information for—(1) the completion of a forest type map, showing composition and age-class conditions, (2) an estimate of standing timber; (3) improving the existing map in correcting as far as possible the water routes and adding as many unmapped routes as possible.

The method consisted of a combination of (a) ground-work; (b) aerial type mapping.

(a) *Ground work*.—Thirty-four men made up the crew for the ground work. This number includes five foresters, sixteen forestry students, nine men used either as packers or on the strip parties, and four cooks.

The organization of the work consisted of a chief, and sub-chief and four field parties composed of a chief and five men, together with a cook and packers where needed.

Field operations extended from May 26th to October 15th, with two months allotted to complete the work on the east side.

Strips were used in collecting field data. Owing to the limited time to cover so large an area, it was not possible to define any set instructions as to the distance apart the strips would be run and this was left to the direction of party chiefs. Every effort was made to adhere to strips one half-mile apart and run as nearly as possible at right angles to the water courses.

The eleven-foot strip was practically used throughout, and it was only in the open jack pine stands that a thirty-three-foot strip was used.

A two or three-man unit formed a strip crew. Since the whole area does not bear any important stands of saw timber species and the strips were eleven-feet wide, a two-man unit proved almost as effective as the three men.

The amount of strip run by all parties amounts to 1,276 miles, or 1,678 acres. This was distributed as follows:—266 acres in the Superior drainage; 226 in the

Poskogami; 137 in the Parks Lake; 83 in the Upper Sturgeon; 326 in the Blackwater; 68 in the Lower Sturgeon; 76 in the North Wind lake; 211 in the Onaman; 185 in the Ombabika and 100 acres in the North Shore.

In addition to running strips, data was collected on 200 felled jackpine trees for the purpose of constructing a volume table suitable for this region and to be used in estimating the contents of the jackpine into feet board measure, cords and ties.

The field data has been compiled by watersheds. Each type has been given a number, and corresponding with that number is a summary sheet with whatever tally has been taken in that type.

Maps have been constructed to show:

1. A key map of forest areas.
2. Forest types in age classes.
3. Age class conditions.
4. Organization of ground work, showing camps and strips.
5. A base map of waterways.

(b) Aerial Type Mapping.—During the summer season of 1923 the aerial type mapping was completed in detail for the tract covered in this survey plus a general sketch of an additional 1,800 square miles north of the Transcontinental railway and largely confined within the Nipigon watershed. According to the report on flying for the northern area, "fully eighty-five per cent. may now be classified as barren, burn and muskeg, with a liberal fifteen per cent. allowance for the scrubby remains of former timber stands fringing the watercourses and in damp hollows. Under the above conditions it was not considered advisable to expend the time or run the risks necessary to prepare a detailed type map of this territory."

Flying was carried on from two bases, Orient Bay and a small island near the mouth of the Ombabika river. Work commenced June 9th and was completed July 13th, 1923. To complete the type mapping for both the area done in detail and the northern area in general required 104 hours' flying.

The field parties were fortunate in having, previous to going into the woods, a type map giving a detailed picture of type and age class conditions.

3. *Summary of Forest Conditions* (Eastern Watershed).—The area covered by this survey comprises a total of 1,773,000 acres east from Lake Nipigon to the height of land and extending from the Transcontinental railway on the north to the reserve boundary on the south.

From north to south there is a general change in topographic and forest conditions. Topographically, three subareas are recognizable. The northern third, or that section confined in the North Shore, Ombabika and Onaman blocks has a low relief resembling the clay belt. Considerable of the area is occupied by stands of scrubby growth and on the whole is not so well drained as the areas south of it. Soils, for the most part, are heavier with considerable clay. This is reflected in the forest composition as the northern third carries only a small percentage of jackpine but a good spruce yield. On the whole the stands are older on account of having suffered less from fire.

Coming south to the middle or intermediate area which parallels the Canadian National Railway both north and south to include the drainage system of North Wind lake, the Sturgeon or Namewaminikan river and Blackwater river, the relief becomes slightly more pronounced, drainage improves and the soils are more sandy. Jackpine becomes a more important component of the stand, furnishing the highest percentage of any of the blocks. This section has, as

might be expected, due to its proximity to the railway, suffered more from fire. Eighteen per cent. of the Upper and Lower Sturgeon has been reduced to the recent burn classification through this agent.

The southern section of Parks Lake, Poskogami and Lake Superior blocks has the most pronounced relief of the three areas. It is characterized topographically by being hilly with deep valleys and rocky outcrops common. Soils are thinner with the better stands occurring in pockets of deeper soils. This area is well drained and carries the highest percentage of mixed stands. The hardwoods are more prominent in the south than the north with the greater proportion birch. The amount of hardwood is closely related to better drainage but more to the average age of the stands, i.e., they are younger than the stands in the north, ranging between eighty and one hundred years.

The whole tract has been classified, showing age-class relationships, and, percentically, 69 per cent. is merchantable, 4 per cent. second growth, 8 per cent. young growth, and 19 per cent. unproductive. This 19 per cent. includes water, recent burn, muskeg and natural or fire barrens.

Again, considering the whole tract, 81 per cent. is forested and 19 per cent. unproductive.

During the past season investigation of the reproduction and growth of white pine stands was undertaken, in charge of Mr. T. W. Dwight of the Faculty of Forestry, University of Toronto. Attached is a summary from Mr. Dwight's preliminary report in connection with this work.

Studies of Young White Pine Stands:

The steady removal of the existing stands of mature white pine in Ontario year by year is having a twofold effect, particularly noticeable in the more accessible forest areas such as the territory south of Lake Nipissing, where lumbering operations have been carried on longest. First, there is an increasing tendency to cut small trees, and, second, a more definite value is placed on second-growth stands, which, while not yet of merchantable size, may be expected to be ready for the market within the present generation. Such changes in conditions bring new problems in forest administration. The questions naturally arise: How small timber should be allowed to be cut, and in what manner can a check best be placed on the cutting of too small timber?

As regards the stands definitely below merchantable size, data is not available for Ontario at least that would permit any accurate prediction for their future value when they do reach merchantable size, nor of the amount of wood that is being annually added to their volume. Both these items of information it is highly desirable to have, not only to demonstrate the concrete benefits that will accrue from protection of these young stands from fire, but also to indicate how much expenditure is justified for that purpose.

With the object of securing data along these lines, investigations were made during the past summer in six localities where there were available stands of pine of seven different ages. All of these had originated after fires, and the timber on any one area was consequently of approximately the same age, except where two successive fires had occurred. The four localities were decided upon after a two-weeks' trip through the forest region lying south of Sudbury and North Bay, during which a considerable number of areas were inspected and all possible information secured from the Crown timber agents and district foresters. The cordial co-operation of all these men is gratefully acknowledged.

The general conclusions outlined above may be summarized as follows:

1. White pine grows typically in even-aged stands in which all the trees, both large and small, are of approximately the same age.
2. Trees of small size may be the result not only of lack of age, but of poor growing conditions or of crowding by other trees. A small average scale may be caused by an excessive amount of rot in logs even though the logs come from fairly large trees.
3. For the purpose of preventing the cutting of timber that is too young or too small, a general regulation limiting either the age or the size of the timber that may be cut will not give satisfactory results. An inspection of each questionable area by a trained official is desirable in order that a decision may be made in each case on the basis of the actual conditions.
4. Many very extensive areas of young growth, including much valuable young pine, ranging in age from twenty-five to eighty years of age, are to be found in the timbered portion of the Province. This young growth came up after fires that burned through virgin timber.
5. The conditions following the fires of the past twenty-five years will not be as favourable as on the areas burned over at earlier times since these later fires burned over more young growth and logged-off areas.
6. The second-growth stands contain a large proportion of poplar which investigation shows to die out at a comparatively early age, leaving the pine to form the mature stand. These stands, therefore, will produce more pine timber than their present condition would indicate superficially.
7. Detailed studies must be made of the growth of pine and poplar in mixture as well as of pine in pure stands, to make it possible to properly appraise the present and future value of young second-growth stands.

IV. REFORESTATION.

Provincial Forest Stations:

St. Williams (Norfolk).
Orono (Durham County).
Midhurst (Simcoe County).

Provincial Transplant Nurseries:

Sand Banks (Prince Edward County).
Kemptville (Grenville County).
New Liskeard (Timiskaming District).

County Forests:

Hendrie (Simcoe County).
Vivian (York County).
Northumberland (Northumberland and Durham Counties).

*Private Forests.**Tree Planting:*

Private Planting.
Demonstration Plots.
Inspection.

*Moss Gathering.**Seed Collecting.**Summary of Nursery Stock.**Summary of Tree Distribution.*

PROVINCIAL FOREST STATIONS:

ST. WILLIAMS

Seed beds: Spring sowing of seed beds commenced on April 5th and continued until May 26th, a total of 244 beds being sown. On October 16th work was commenced in connection with fall sowing. A total of 1,080 beds completed the season's nursery operations. As may be noted, the tendency toward fall seeding has increased. Good results are obtained while a more equal division of labour is brought about, permitting more time during the spring for transplanting one- and two-year-old seedlings.

Nursery Lines: The practice of lining out the bulk of transplants during the fall season is gradually being done away with until this work, it is hoped, will be carried on entirely as a spring operation. A dry fall, followed by winter-killing and frost-heaving during early spring, invariably causes a heavy loss of seedlings which have been lined out in the fall. During the spring, 2,852,080 plants were lined out.

In addition to the foregoing disposal of seedlings, a considerable number of one- and two-year-old transplants were shipped, both during the spring and fall, to the provincial forestry stations situated at Orono and Midhurst. A total of 3,784,000 plants were shipped to these stations.

Tree seed is obtained almost entirely from material collected by the Forestry Branch. The bulk of seed procured comes from Simcoe county, while the seed of such species as scotch and jackpine is collected from older plantations on and about the Norfolk Forest Station. Present seed stored at St. Williams is as follows:

Species	Origin	When Collected	Pounds	Ounces
White Pine.....	Simcoe County.....	1924	114	.....
Red Pine.....	Simcoe County.....	1923	1,208	.....
Scotch Pine.....	Norfolk County.....	1924	127	.....
Jack Pine.....	Norfolk County.....	1923	24	.....
Austrian Pine.....	Norfolk County.....	1923	1	8
White Spruce.....	Simcoe County.....	1924	70	.....
White Spruce.....	Danish.....	1922	2	.....
Norway Spruce.....	Central Europe.....	1922	2	.....
Sitka Spruce.....	B.C.....	1922	10	.....
White Cedar.....	Simcoe County.....	1923	52	.....
White Cedar.....	Simcoe County.....	1924	51	8
Hemlock.....	Simcoe County.....	1922	11	.....
Tamarack.....	Simcoe County.....	1924	6	.....
Balsam.....	Simcoe County.....	1922	78	.....
Balsam.....	Simcoe County.....	1924	23	.....
Total.....	.....	.....	1,780	.....

Additions to property: A building 22 feet by 24 feet was constructed to serve the purpose of a combined office and storehouse. A full-sized nine-foot basement provides ample space for surplus tools and all other equipment, while on the main floor, such supplies that are in constant use are conveniently hung on racks. Every article is checked out, thereby obtaining a much closer tab on the tools that are operating.

Roads: Several new roads have been constructed, dividing woodland and plantation areas into smaller units, thereby facilitating access and reducing fire hazard. Roads were brushed and widened where necessary. Old fire roads

were ploughed twice and otherwise maintained in good condition. A new fire road, sixteen feet in width and 660 yards long, was constructed.

Fencing: Four hundred and fifty acres were fenced. This area comprises 260 acres of young plantation, and a remaining 190 acres of bushland which will be planted very shortly.

Silviculture: The greater portion of the natural woodland section of the Norfolk Forest Station is composed of scrub oak type. This type presents a very poor picture, and the policy of cutting over, leaving only healthy trees, has been continued. This improvement cutting is followed during the ensuing year by planting. An area of approximately 150 acres has been cut over during the early spring and winter months, while 100 acres were planted out permanently to red and white pine this recent fall.

Since 1909, permanent planting has been carried on annually until we now have forty-eight individual plantations ranging from one to fifteen years of age. Species used, and conditions under which planting was carried out, has been recorded. Furthermore, all costs in connection with trimming and thinning of older plantations are kept.

Protection (Disease and Insects): The work of combating white pine blister rust and the white pine weevil was continued. Three men under experienced supervision inspected all white pine plantations at periods of from two to three weeks. All weeviled leaders were cut off and immediately put in tight boxes, the tops of which were covered with galvanized screening. The purpose of this is to permit the small parasite (the natural enemy of the white pine weevil) to escape, and at the same time to prevent the weevil itself from obtaining its liberty when it reaches the "fly" stage.

NURSERY STOCK ON HAND DECEMBER 15th, 1924

CONIFERS:

Balsam.....	117,700
Cedar, white.....	1,799,600
Larch, European.....	262,000
Larch, Japanese.....	27,000
Pine, white.....	1,843,000
Pine, red.....	3,220,000
Pine, Scotch.....	2,542,700
Pine, Jack.....	1,302,000
Pine, Austrian.....	26,900
Spruce, white.....	1,673,000
Spruce, Norway.....	1,003,000

Total..... 13,816,900

HARDWOODS:

Ash, white.....	124,400
Beech.....	5,800
Birch, white.....	1,200
Catalpa.....	1,900
Chestnut.....	3,500
Cherry, black.....	12,500
Elm.....	115,900
Locust, black.....	10,000
Locust, honey.....	7,000
Maple, Manitoba.....	3,550
Maple, hard.....	40,700
Maple, red.....	13,900
Maple, soft.....	9,000
Walnut, black.....	50,000
Walnut, white.....	35,000
Poplar, rooted.....	150
Poplar, cuttings.....	200,000
Willow cuttings.....	50,000

Total..... 684,500

SUMMARY OF THE YEAR'S OPERATIONS:

(a) Total number of seed beds sown.....	1,324
(b) Total number of pounds of coniferous seed sown.....	1,407
(c) Total number of pounds of coniferous seed on hand..	1,780
(d) Total number of transplants lined out.....	2,852,080
(e) Total number of transplants shipped to Orono and Midhurst Forestry Stations.....	3,784,000
(f) Total nursery stock on hand.....	14,501,400

ORONO

Seeding: Owing to the lack of an irrigation system as yet, the seeding of coniferous species has not been carried on extensively. With certain species, notably white pine and white spruce of the native varieties and scotch pine of the exotic varieties, our experimental beds have produced an eighty per cent. to eighty-five per cent. stand without irrigation, but with other species the necessity for water was very apparent. Twenty-four beds were sown in the spring and ninety in the autumn.

FALL SOWING OF CONIFEROUS BEDS

	lbs.	ozs.
Cedar, white.....	3	12
Juniper, red.....	3	12
Pine, red.....	14	4
Pine, Scotch.....	1	14
Pine, white.....	78	..
Spruce, white.....	8	..
	109	10

SOWING OF HARDWOOD SEED

	Bushels
Ash, white.....	5 1/2
Birch, white.....	1/2
Birch, yellow.....	1/2
Elm, white.....	10
Maple, hard.....	1/2
Maple, soft.....	50
Walnut.....	30
	97

NURSERY LINES

SPRING TRANSPLANTING OF CONIFERS

	Seedlings
Cedar, white (2 years).....	4,000
Pine, Jack (2 years).....	30,000
Pine, Jack (1 year).....	125,000
Pine, red (1 year).....	20,000
Pine, Scotch (1 year).....	470,000
Pine, white (1 year).....	475,000
Spruce, white (2 years).....	50,000
Total.....	1,174,000

Transplanting: Fall transplanting has been found to yield very satisfactory results although a little more care has been found necessary. As we have no protective hedges which have reached a size sufficient to form effective wind-breaks, it has been necessary to mulch with rye straw and brush to hold snow. In this way snow blankets from two to three feet in depth are found over the transplant beds.

As hardwoods are usually of large enough size for distribution at the end of the first growing season, only such as are backward in the first season's growth or are excess stock are transplanted, except hard maple which requires two years at the nursery.

Roads: All main roads and nursery roads in the northern part of the nursery have now been placed on a permanent basis, gravelled, and, where necessary, concrete culverts constructed to carry surface water during the spring thaws. The depth of snow makes these culverts a necessity.

During the summer a road was built connecting the north entrance to the nursery with the fifth concession, following the main gully for its full length.

Demonstration Plantations: Three acres of hillside were planted to a mixture of white and Austrian pine as a commencement in demonstration plantations.

An acre of blowing sand was also brushed and planted to scotch pine.

Both plantations are doing well.

Publicity: At the request of the agricultural societies concerned, exhibits were placed at the township agricultural fairs in Clarke and Cavan townships, Durham county, held at Orono and Millbrook respectively.

These exhibits took the form of rows of boxes in which were a few specimens of each age of all species on hand, placed on a sloping frame. Seed in Riker mounts were placed at the bottom of each row, which then extended upwards to the oldest specimens of the species on hand. Bulletins were distributed to those interested and advice given on the establishment of new plantations, treatment of old plantations and the handling of woodlots where possible. A large number of prospective planters were interviewed in this way.

STOCK ON HAND, DECMEBER 15th, 1924

CONIFERS:

Balsam.....	165,000
Cedar, white.....	197,500
Larch, Japanese.....	9,000
Pine, jack.....	185,000
Pine, red.....	300,000
Pine, Scotch.....	400,000
Pine, white.....	1,705,000
Spruce, Norway.....	96,400
Spruce, white.....	380,000

Total..... 3,437,900

HARDWOODS:

Ash, white.....	155,000
Butternut.....	4,000
Elm, white.....	120,000
Maple, hard.....	5,000
Maple, red.....	75,000
Maple, silver.....	140,000
Walnut.....	3,500

Total..... 502,500

MIDHURST

Seeding: Seed beds were sown both in spring and fall. Early in May a total of 156 beds were put in. On account of the cold and backward spring, germination was slow but good. The sowing of fall beds was done between November 3rd and November 21st. A total of 247 beds were sown.

Transplanting: Transplanting was carried on during both spring and fall. The larger portion of the seedlings was received from the St. Williams nursery. The spring transplanting was carried on from May 2nd until May 26th, and the fall from August 20th to September 16th. The spring transplants made a particularly fine showing, the mortality being quite low. A temporary irrigation

system was used with some of the fall transplanting; 1,243,600 plants were set out in the spring and 993,000 in the autumn.

Permanent Planting: Considerable permanent planting was done on the property, including windbreaks and hedges around nursery ground. The permanent planting destroyed by grasshoppers last year was filled in. The planting this spring was very successful, the mortality on most of the plantations being less than five per cent. The grasshoppers attacked one plantation, but they were checked by using bran poison mash. The paris green was found more effective than arsenate of lead. There is approximately 200 acres planted up permanently now.

Roads: Fire roads were made, dividing plantations into compartments. These were laid out with two objects in view: first, to divide plantations into approximately equal compartments; second, to provide roads and drives later on.

PERMANENT PLANTING—SPRING, 1924

Plantation	Acreage	Spacing and how Planted	Age of Plants	Number
Red and white pine, mixed.....	5	Alternate rows, 6x6	Red 1—1 White 1—2	6,050
Red pine.....	8	6x6	1—1	9,680
White pine.....	5	6x6	1—2	6,050
Jack pine.....	30	6x6	1—1	36,300
Scotch pine.....	40	6x6	1—1	48,400
Red pine.....	40	6x6	1—1	48,400
Totals.....	128			154,800

PERMANENT PLANTING—FALL, 1924

Plantation	Acreage	Spacing	How Planted	Age of Plants	Number
Scotch pine mixed with larch, red, white and jack pines.....	20	6x6	Alternate Rows —Blocks	Scotch P. 1—2 Jack P. 1—2 Red P. 1—2 Larch 1—2 White P. 2—1	24,200
Spruce mixed with larch, red, white, Scotch and jack pines....	30	6x6	Alternate Rows —Block	Spruce 2—2—1 Jack P. 1—2 Red P. 1—2 Larch 1—2 White P. 2—1	36,300
White and red pine, mixed.....	10	6x6	Alternate Rows	Red P. 1—2 White P. 2—1	12,100
Totals.....	60				72,600

Building: A water system was installed during the year. The water is pumped from a spring creek into a 20,000-gallon tank placed on a 100-foot steel tower. The system is quite satisfactory and was used this summer with Skinner overhead equipment.

A stable was built at one of the houses and garage at this house was moved to site of other buildings. A small gasoline house was also built.

Silviculture: About thirty-five acres of second-growth hardwoods were subjected to improvement cutting. These are in pole stage at present. Poor specimens, weed trees, etc., were taken out and are being worked into wood.

About thirty acres of swamp was partly cleaned up. About four years back all the good timber in the swamp was taken out. No brush was burned and a lot of down logs were left. This, with windfalls, since cutting, left the swamp in bad condition. Roads have been made, brush burned up and considerable wood from down logs have been worked up.

Last winter about twenty large trees with soil frozen to roots were moved on stoneboat and placed around buildings. This experiment was quite successful. Early this winter twenty more sugar and red maple were moved. In the trees moved last year it was found that elms would not stand moving; maples were fairly successful. The ground was not thoroughly frozen around the hard maples.

Lawns and hedges were made around houses, windbreaks were planted, marking roads and dividing the nursery into compartments. Considerable stumping and breaking up new land for nursery purposes was done. Fifteen acres of low land was fenced to be used for a pasture.

The nursery land was prepared by fertilizing with manure and ploughing under cover crops consisting of rye, buckwheat and peas. The peas grew so tall that they had to be cut. Sweet clover has been sown for the same purpose.

The basin in front of the dam has been cleaned out and the sides stoned.

NURSERY STOCK ON HAND, DECEMBER 1st, 1924

CONIFERS:

White Pine.....	1,272,500
Red Pine.....	1,646,600
Scotch Pine.....	496,000
Jack Pine.....	414,000
European Larch.....	48,000
White Cedar.....	390,000
Balsam.....	134,000
White Spruce.....	231,500
Norway Spruce.....	44,000
Sitka Spruce.....	72,000
Hemlock.....	6,000
	<hr/>
	4,754,600

HARDWOODS:

Silver Maple.....	75,000
White Elm.....	76,320
White Ash.....	6,175
Butternut.....	16,425
Walnut.....	2,100
Locust.....	350
Red Maple.....	675
	<hr/>
	177,045

TRANSPLANT NURSERIES

SAND BANKS

The work at the sand banks this year consisted, for the most part, in filling up failed places in the belts already established with poplar cuttings, and in lifting and repairing catch fences.

The transplants in the nursery were supplemented by several thousand cuttings which are to be grown as rooted poplars for later transplanting on the banks. This material is easily handled in nursery rows and has proven very satisfactory in holding the drifting sand.

The following is a list of trees in the nursery:

CONIFERS:

Jack Pine.....	807,620
White Pine.....	27,360
Scotch Pine.....	52,575
White Cedar.....	14,840
Red Pine.....	139,285
Norway Spruce.....	95,840

Total..... 1,137,520

HARDWOODS:

Oak.....	1,985
Soft Maple.....	980
Elm.....	1,066
Locust.....	15,000
Hard Maple.....	21,750
White Ash.....	9,000
Butternut.....	9,875
Walnut.....	9,905

Total..... 69,561

KEMPTVILLE

A small transplant nursery at the Kemptville school has served to interest landowners in the eastern part of the Province in tree planting. Some of the material there was used for demonstrating purposes on the school property and some was distributed locally.

During the spring a quantity of transplants were set out, making a total of stock in the nursery as follows:

CONIFERS:

Red Pine.....	46,000
White Pine.....	24,000
Jack Pine.....	79,000
Scotch Pine.....	110,000
White Spruce.....	12,000
Norway Spruce.....	4,800

Total..... 275,800

HARDWOODS:

White Ash.....	1,600
Soft Maple.....	2,500
Elm.....	150
Hard Maple.....	350
Walnut.....	2,200
Butternut.....	2,300
Poplar.....	950
Willow.....	550

Total..... 10,600

NEW LISKEARD

For some time the establishing of a small nursery in the northern part of the Province has been under consideration. Tree planting in New Ontario, of course, has not advanced rapidly because there is not the same need there, due to the abundance of forest, as there is in Southern Ontario. It has been found, however, that when the forest is removed for agricultural purposes in the north, the wind does considerable damage to crops. The purpose, therefore, of establishing this nursery is to supply local farmers with suitable material for wind-break planting and to have it on hand for local distribution when the spring season opens up.

During the autumn the following transplants were set out:

White Spruce.....	8,500
Cedar.....	1,000
Scotch Pine.....	500
Soft Maple.....	2,750
Elm.....	2,250
Honey Locust.....	100
Total.....	15,100

COUNTY FORESTS

HENDRIE

At this forest approximately 250 acres were planted during the spring of 1924. The species used were the four pines—red, white, scotch, and jack—and some plantations were set out pure; others were made of mixtures of two or more of these species. During the summer all the plantations at this forest did exceptionally well as was the case generally throughout the Province. Contrary to last year when grasshoppers were troublesome, no difficulty was encountered in this matter due to the sturdy growth of the trees.

Besides the large plantations of pine, a quantity of red maple were planted around a pond.

The trees planted are as follows:

White Pine.....	12,300
Red Pine.....	71,500
Scotch Pine.....	33,500
Jack Pine.....	199,800
Red Maple.....	5,000
Total.....	322,100

During the summer fire roads were ploughed, harrowed, and underbrush cut, and transplants in nursery lines kept clean.

This fall three compartments of approximately 200 acres were underbrushed and furrowed preparatory for planting in the spring. This will leave approximately 100 acres more to be planted as there is swamp and second-growth on south part of property.

STOCK ON HAND DECEMBER 1st, 1924

White Pine.....	105,400
Red Pine.....	47,700
Scotch Pine.....	67,200
Jack Pine.....	130,000
Norway Spruce.....	27,400
White Spruce.....	266,500
Cedar.....	500
Elm.....	500
Butternut.....	500
Sugar Maple.....	3,000
Total.....	648,700

VIVIAN

During the winter of 1923-4, the County Council of York purchased a block of sand land in Whitchurch township, situated about eight miles east of Aurora. The area is part of a continuous ridge of tumultuous hills which extend from York county on down through Ontario, Durham and Northumberland counties. The area purchased comprises 600 acres which is to be increased in the near future to 1,000 acres.

During the spring season the following trees were planted:

White Pine.....	13,000
Red Pine.....	43,000
Scotch Pine.....	65,000
Jack Pine.....	42,000
Larch.....	7,500
Poplar.....	6,000
Total.....	176,500

The old buildings on the property were torn down and removed and fences were either rebuilt or repaired, enclosing all planted areas. The only good house which was on the property at the time of purchase was re-roofed and placed on a concrete foundation with cellar.

During the summer a contour and type map was made of the area which is being used in the preparation of working plans.

NORTHUMBERLAND

This forest consists of a 1,000 acre block in Haldimand township, fourteen miles from Cobourg, and is owned by the United Counties of Northumberland and Durham. It is part of the same ridge of hills which extends from the Vivian forest and forms a watershed between Rice Lake and Lake Ontario. The county highway from Cobourg to Hastings runs through the property for two miles, thereby making it an ideal demonstration of reforestation.

During the planting season the following trees were set out:

White Pine.....	11,500
Red Pine.....	87,700
Scotch Pine.....	48,360
Jack Pine.....	33,300
Poplar.....	300
Honey Locust.....	700
Larch.....	22,500
Total.....	207,060

In addition, practically all the fencing at the forest was rebuilt or repaired, and a wooden tower was erected on the hilltop, commanding a view of the whole countryside.

During the summer a contour and type map was made which is being used in the preparation of working plans.

PRIVATE FORESTS

In connection with tree-planting work of the Branch, it has always been our policy to assist landowners with their planting work, chiefly as regards advice through the mail and occasionally, where the size of the area warrants it, by personal supervision. This service is also extended in the matter of advice in the handling of existing wood lots in so far as facilities will permit.

During the past year two people have taken advantage of this service on a large scale and have not only asked for technical assistance, but have placed

their properties under the supervision of this office and have asked that they be handled in the same way as county forests except, of course, in the case of private forests all financial obligations must be met by the individual.

OSLER FOREST

This forest is the property of H. S. Osler, Esq. It is situated on Lake Scugog and consists of 1,600 acres. About three-quarters of the area is grass land and will be planted. The remainder is woodland.

During the spring the following trees were set out:

White Pine.....	12,000
Jack Pine.....	33,000
Scotch Pine.....	46,000
Red Pine.....	11,000
Elm.....	2,000
Soft Maple.....	10,000

A contour and type map was prepared during the summer which is being used as a basis for working plans.

WILLIAMS FOREST

This forest is the property of Francis Williams, of Bracebridge, Muskoka. It is situated eight miles from that town and is 600 acres in size. It comprises, for the most part, some of the typical Muskoka hardwood land and is more a management proposition than planting. There are, however, some areas of grass land which are being planted, and thinning and improvement work is being done during the winter. A map of this area was also made during the summer and working plans are being prepared.

TREE PLANTING

PRIVATE PLANTING

The planting of trees by private individuals this year increased more than double over the previous year. This was due to a more vigorous campaign of advertising than previously and also to the interest created by the offer of the Branch to supply windbreak material.

During the winter a seventy-one page illustrated bulletin on "Forest Tree Planting" was issued, setting forth in detail the advantages and methods of such work. A small circular was also issued, entitled "Windbreaks and Shelter Belts." The number of persons supplied with trees were 1,351, and the number of trees of all species sent out was 1,954,671.

DEMONSTRATION PLOTS

The purpose of establishing demonstration plots throughout the Province has been to show to persons having non-agricultural land how this might be utilized for tree growth and what results might be expected. Some of the plots

established have now grown to fifteen or twenty feet in height, notably the one set out near the village of Norwood in 1912. To assist in bringing these plots to the attention of passersby, signs were prepared and erected during the summer at twelve of these plots, stating the year in which they were planted and their purpose.

The following new plots were established during the spring planting season:

BRANT COUNTY (OAKLAND TOWNSHIP)

This plot is situated ten miles from the city of Brantford on the main road to Simcoe. It is one of a number of demonstration plots which the county of Brant purposes setting out. The scheme is to establish a plot each year in different parts of the county and name it after the warden for that year. This plot is three acres in size and the following trees were planted thereon:

Scotch Pine.....	500
Jack Pine.....	500
White Pine.....	500
Red Pine.....	1,000

HAMILTON PARKS BOARD (CITY OF HAMILTON)

This planting was planned and carried out under the supervision of the Forestry Branch by the city of Hamilton, the purpose being to beautify the face of the mountain. The city paid for the planting and the Branch supplied the following trees:

Jack Pine.....	12,000
Scotch Pine.....	1,000
White Pine.....	500
Austrian Pine.....	200
White Spruce.....	500
Cedar.....	1,000
Silver Maple.....	4,000
White Ash.....	2,000
Walnut.....	1,000
Butternut.....	2,000
Willow.....	5,000
Poplar.....	1,000
Red Maple.....	4,000

HUMBERSTONE TOWNSHIP (WELLAND COUNTY)

This plot consists of a small part of the township community park on the shore of Lake Erie where sand from the lake is being blown inland. The following trees were planted:

Scotch Pine.....	1,000
Jack Pine.....	1,000

ISLINGTON COMMUNITY PARK

This plantation was established on land purchased by Islington for a community park, and the area, besides being visited by several hundred people during the summer, is in full view from two railways. The following trees were planted:

White Pine.....	300
Jack Pine.....	300
Scotch Pine.....	1,000

Red Pine.....	300
Walnut.....	400
White Ash.....	400
Soft Maple.....	500
Elm.....	500
White Spruce.....	500

NORTH YORK TOWNSHIP (YORK COUNTY)

The land planted for this township comprises an area on both sides of the Don river where it is dammed for township water purposes. The planting was done on the sides of the river valley and is seen in its entirety from the highway. The following trees were used:

Scotch Pine.....	4,000
Jack Pine.....	500
White Pine.....	1,000
Red Pine.....	1,000
Cedar.....	1,000

MIDLAND (FOR THE TOWN OF MIDLAND)

The area planted here consists of a part of a forest reserve in which are situated springs which supply the town with water. Vacant areas were filled up in order to better control the run-off into feeder springs and creeks. This plot borders on the Midland-Penetang road. The following trees were planted:

Jack Pine.....	2,000
Scotch Pine.....	2,000

MULMUR TOWNSHIP (DUFFERIN COUNTY)

This plot consists of fifty acres in a large sand area in the heart of Mulmur. The property borders a winding road which in past years has been interfered with badly by drifting sand.

Approximately fifteen acres were planted this year with 4,000 scotch, 4,000 jack, and 8,000 red pine.

WAINFLEET TOWNSHIP (WELLAND COUNTY)

The area occupied by this plantation is a part of the agricultural park in the village of Wainfleet. The following species were planted:

Walnut.....	1,000
Butternut.....	1,000
White Ash.....	500
Soft Maple.....	500

LAKE SHORE

This plot is situated between the lake shore road and the beach. At the place where the trees are planted, the wind has gouged a section of the bank, causing sand to drift into the road and necessitating the changing of its course. One thousand jackpine were planted.

PUSLINCH TOWNSHIP (WELLINGTON COUNTY)

The city of Guelph receives its water supply from springs which rise in Puslinch township some distance from the city. Considerable planting has been done in these areas in years past and this year an additional quantity of 13,000 of Scotch pine were set out. The Government supplied the trees and the city paid for part of the planting.

Of the plots already established, the following have had their areas extended or have been supplemented where necessary with new trees:

Albemarle (East),	Jack Pine.....	1,000
	Red Pine.....	2,000
Albemarle (West),	Jack Pine.....	1,000
	Red Pine.....	2,000
Colborne.....	Jack Pine.....	1,200
	Scotch Pine.....	1,200
Cramahe.....	White Pine.....	2,000
	Red Pine.....	2,000
Beeton.....	Jack Pine.....	10,000
	Red Pine.....	15,000
Essa.....	Jack Pine.....	1,200
	Scotch Pine.....	1,000
Innisfil.....	White Pine.....	2,000
	Red Pine.....	2,000
Sunnidale.....	Jack Pine.....	2,000
	Scotch Pine.....	1,000
Kemptonville.....	Scotch Pine.....	4,900
	Jack Pine.....	2,500
	White Spruce.....	2,400
	Red Pine.....	2,400

PLANTATION INSPECTION

Inspection of private plantations during the summer of 1924 was carried on in two counties only. These were Ontario and Lambton. In Ontario county, twenty-one plantations were visited. These are mainly in the southern part of the county, several being concentrated in the sand area about Uxbridge. In Lambton county, twenty-eight visits were made. Nearly half of these are to be found in the extensive waste lands in Bosanquet township between Forest and Grand Bend.

In both of the above cases the plantations visited were those consisting of over 500 trees established between the years 1907 and 1923.

With the exception of Elgin county, the whole of southern Old Ontario has now been covered in this work.

MOSS GATHERING

In the distribution of large quantities of nursery stock, the question of a sufficient supply of sphagnum moss has become a serious one. Previous to this year the supply was purchased from wholesale nurserymen, who in turn imported this material. With the increase of output on the part of our three large nurseries and the necessity of shipping trees from two of the three transplant nurseries, it was found necessary to secure our supply of moss independently. A suitable area for this purpose was found within reasonable distance of Toronto with good shipping facilities, and during the autumn 426 bales of good quality moss was secured. Each bale when pressed measured 1x2x3½ feet and the supply is intended to serve next season's shipments.

SEED COLLECTING

The work of extracting the red pine harvest of 1923 continued until April of this year. The method of extracting and cleaning was the same as that followed for the harvest of 1922. The new building and enlarged equipment was, however, a big improvement on former years and indicated what a plant of this size can be expected to turn out.

During the season of 1924 large quantities of seed of different species were gathered, as follows:

White Pine, 2,065 1/8 bushels, at.....	\$0 75
Red Pine, 126 6/8 bushels, at.....	2 00
Red Pine, 1,048 bushels, at.....	2 25
White Spruce, 13 2/8 bushels, at.....	2 00
White Spruce, 198 bushels, at.....	2 25
White Cedar, 65 1/32 bushels.....	4 00
Red Cedar, 6 1/2 bushels, at.....	
Tamarack, 5 7/8 bushels, at.....	5 00
Hemlock, 23 29/32 bushels, at.....	4 00
Balsam, 11 1/8 bushels.....	2 00
Norway, 12 5/8 bushels.....	1 00
Scotch Pine, 45 7/8 bushels.....	2 00
White Ash, 23 9/16 bushels.....	2 00
White Birch, 7 bushels, at.....	4 00
Yellow Birch, 18 29/32 bushels, at.....	4 00
Red Oak, 13 3/8 bushels, at.....	2 00
Red Oak, 33 6/8 bushels, at.....	50
Black Cherry, 15/16 bushels, at.....	4 00
Basswood, 19 lbs., at.....	4 00
Hard Maple, 19 2/8 bushels, at.....	2 00
Beech, 5 1/2 qts, at.....	4 00
Walnut, 32 7/8 bushels.....	50
Manitoba Maple, 19 2/8 bushels, at.....	2 00
American Elm, 14 1/2 bushels, at.....	
Soft Maple, 45 bushels.....	
Red Maple, 5 bushels.....	
Honey Locust, 9 lbs., at.....	

During the autumn of 1924 a drying shed was erected at Angus. This consists of a three and a half storey frame building, 30x45 feet. A hand-power hoist was installed at the front end for lifting cones from the loading platform to the three floors above. At the top floor the drying shed is connected with the extracting building by means of an overhead trestle over which cones are carried by means of hand car.

SUMMARY OF NURSERY STOCK, 1924-25

Nursery	Conifers	Hardwoods
St. Williams.....	13,816,900	684,500
Orono.....	3,437,900	502,500
Midhurst.....	4,754,600	177,045
Sand Banks.....	1,137,520	65,561
Kemptville.....	275,000	10,600
New Liskeard.....	10,000	5,100
Hendrie.....	644,700	4,000
	24,076,620	1,449,306
	1,449,306	
Total.....	25,525,926	

SUMMARY OF TREES USED IN PERMANENT PLANTATIONS

Provincial Forest Stations.....	437,280
Municipal Plantations (county, township).....	633,260
Private landowners.....	1,954,671
Total.....	3,025,211

Appendix No. 41

Timber sales.—From 1st November, 1923, to 31st October, 1924

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1923 Oct. 8.	1923 Nov. 1.	Bond Township.—W. half lots 7 to 12, cons. 1 to 6,—Dist. of Cochrane.	18	1	Hawk Lake Lumber Co., Ltd., Monteith, Ontario.	Pine, \$1.26 per M. ft. B.M.; spruce and poplar, \$2.76 per M. ft. B.M.; tamarac, etc., 70c. per M. ft. B.M.; ties, 21c. each; spruce pulpwood, 51 c. per cord; other pulpwood, 9c. per cord; fuelwood, 6 c. per cord, all in addition to Crown dues.	General Logging and Pulpwood	35167
1923 Oct. 19.	1923 Nov. 5.	Shedden Township.—Lots 7 and 8, con. 6.—Dist. of Algoma.	1	1	Graham and Wilkinson, Spanish Station, Ont.	Pine, \$3.62 per M. ft. B.M.; spruce, poplar and basswood, \$1.00 per M. ft. B.M.; other timber, 50 c. per M. ft. B.M.; ties, 5c. each; spruce pulpwood, 25c. each, all in addition to Crown dues.	Logging	23848
1923 Oct. 13.	1923 Nov. 5.	Rennie Township.—Dist. of Sudbury.	36	1	Austin and Nicholson, Limited, Chapleau, Ont.	Red and white pine, \$6.00 per M. ft. B.M., in addition to Crown dues; spruce logs, \$5.10 per M. ft. B.M.; jackpine, \$4.80 per M. ft. B.M.; spruce pulpwood, \$1.00 per cord; other pulpwood 70c. per cord; ties, 11 1/2c. each, all inclusive of Crown dues.	Ties	49851
1923 Oct. 27.	1923 Nov. 15.	Fairbank Township.—Lot N. half 1, con. 4, and all that part of lot 2, con. 4, lying E. of the Vermillion River.—Dist. of Sudbury.	1	1	R. V. Tremblay, Chelmsford, Ont.	Pine, \$2.40 per M. ft. B.M., in addition to Crown dues.	General	46516
1923 Nov. 5.	1923 Nov. 26.	McTavish Township.—Lots part 11 and 12, cons. 2 and 3,—Dist. of Thunder Bay.	2	2	Stuart MacKenzie, Fort William, Ont.	Pine, \$10.00 per M. ft. B.M.; spruce, poplar and basswood, \$2.00; other timber, \$1.00; ties, 22c. each; spruce pulpwood, \$2.71 per cord; other pulpwood, 50c. per cord; all in addition to Crown dues; fuelwood, 25c. only.	Pulpwood and ties.	19756

1923 Nov. 5.	1923 Nov. 30.	Regan Township.—Dist. of Sudbury.	67	3	Acme Timber Co., Ltd., Sudbury.	Red and white pine, \$7.60 per M. ft. B.M.; jackpine, \$6.60 per M. ft. B.M.; ties, 2c. each; in addition to Crown dues.	Ties.	26405
1923 Nov. 13.	1923 Dec. 4.	Lundy Township.—Lot 1, sections 2 and 3.—Temiskaming Dist.	1	2	Shepherdson, Ltd., New Liskeard, Ont.	Pine, \$4.00 per M. ft. B.M.; spruce, \$4.00 per M. ft. B.M.; fuelwood, 30c. per cord; all in addition to Crown dues.	Sawlogs.	16080
1923 Nov. 9.	1923 Dec. 1.	Area situated on Oscondiga River, and including part of north part of Goldie Township.—Thunder Bay Dist.	7	5	J. C. Greer, Port Arthur, Ont.	Pine, \$15.00 per M. ft. B.M.; spruce, poplar and basswood, \$13.00; other timber, \$11.50 per M. ft. B.M.; ties, 24c. each; spruce pulpwood, \$1.80 per cord; other pulpwood, \$1.30 per cord; fuelwood, 25c. per cord. Cedar posts, 10c. each, all in addition to Crown dues; <i>cedar poles</i> , 30 ft. and less, 50c; 31 to 40 ft., 70c.; 41 to 50 ft., \$1.00; 51 ft. and over, \$1.50, all in addition to Crown dues.	Ties and Pulpwood.	15605
1923 Nov. 16.	1923 Dec. 1.	Cane Township.—Lots S. half 7, 8, con. 1.—Dist. of Temiskaming.	1	3	John Clark, Englehart, Ont.	Pine, \$5.35 per M. ft. B.M.; spruce, poplar and balsam, \$4.75 per M. ft. B.M.; railway ties, 5c. each; spruce pulpwood, 40c. per cord; other pulpwood, 20c. per cord; fuelwood, 5c.; all in addition to Crown dues.	Ties.	18645
1923 Nov. 13.	1923 Dec. 4.	Conmee Township.—Lots R-704, R-705, R-706, 143-E.—Dist. of Thunder Bay.	1 1/4	5	Oliver Schram, Port Arthur, Ont.	Pine, \$5.50 per M. ft. B.M.; spruce, poplar and basswood, \$2.15 per M. ft. B.M.; other timber, 75c.; spruce pulpwood, 51c. per cord; other pulpwood, 25c. per cord; ties, 15 1/2c. each; fuelwood, 10c. per cord; all in addition to Crown dues. Cedar posts, 2c. only.	Ties and Pulpwood.	33966
1923 Nov. 14.	1923 Dec. 1.	Unibach Township.—Lot 10, con. 2.—Kenora Dist.	1/2	1	Frank Haksell, Kenora, Ont.	Ties, 10c. each; crown dues only.	Ties.	10744
1923 Nov. 10.	1923 Dec. 8.	Fripp Township.—W. Grassy River.—Temagami For. Res.	8	1	Double Diamond Lumber Co., Ltd., Mattagami Heights.	Red and white pine, \$7.50 per M. ft. B.M.; jackpine, \$3.50; spruce, \$4.00; other timber, Crown dues only; spruce pulpwood, 30c. per cord; other pulpwood, 20c. per cord; all in addition to Crown dues; cedar posts, 2c. each, Crown dues only. <i>Cedar poles</i> , 30 ft. and less, 5c. each; 31 to 40 ft., 10c. each; 41 to 50 ft., 15c. each; 51 ft. and over, 25c. each, all in addition to Crown dues; fuelwood, 25c. per cord only.		46076

Appendix No. 41—Continued

Timber sales.—From 1st November, 1923, to 31st October, 1924

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1923 Nov. 13.	1923 Dec. 11.	Ossin Township.—Cochrane District.	81	2	Continental Wood Products Co., Ltd., Elsas, Ont.	Red and white pine, \$5.05 per M. ft. B.M.; jackpine, \$3.06 per M. ft. B.M.; spruce, poplar and basswood, \$3.26 per M. ft. B.M.; hewn ties, 22c. each; spruce pulpwood, 51c. per cord; other pulpwood, 10c. per cord; cedar posts, 3c. each, all in addition to Crown dues. <i>Cedar poles</i> , 30 ft. and less, 25c. each; 31 to 40 ft., 50c. each; 41 to 50 ft. 75c. each; 51 ft. and over, \$1.00 each; fuelwood, 10c. per cord, all in addition to Crown dues.	General Logging	51744
1923 Nov. 20.	1923 Dec. 12.	Firstbrook Township.—Lots 10 and 11, con. 2; lots 10 and 11, con. 3.—Block 1.—Dist. of Temiskaming.	2	2	C. J. Price, New Liskeard, Ont.	Pine, \$3.79 per M. ft. B.M.; spruce, \$3.69 per M. ft. B.M.; other timber, \$1.50 per M. ft. B.M.; ties, 25c. each; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; firewood, 10c. per cord; cedar posts, 5c. each, all in addition to Crown dues. <i>Cedar poles</i> , 30 ft. and less, 15c. each; 31 to 40 ft., 25c. each; 41 to 50 ft., 25c. each; 51 ft. and over, 25c. each, all in addition to Crown dues.	General Logging.	3144-A
1923 Nov. 21.	1923 Dec. 12.	Firstbrook Township.—Block No. 2, lots N. half 8, 9, con. 3.—Temiskaming Dist.	1	1	Norfolk and Rochester Hardware and Lumber Co., Ltd., Haileybury, Ont.	Pine, \$3.50 per M. ft. B.M.; spruce, \$3.00 per M. ft. B.M.; other timber, \$2.00 per M. ft. B.M.; ties, 25c. each; spruce pulpwood, 50c. per cord; other pulpwood, 25c. per cord; fuelwood, 10c. per cord; cedar posts, 5c. each. <i>Cedar poles</i> , 30 ft. and less, 20c. each; 31 to 40 ft., 25c. each; 41 to 50 ft., 30c. each; 51 ft. and over, 50c. each; all in addition to Crown dues.	General Logging.	3144-A

1923 Nov. 21.	1923 Dec. 12.	Firstbrook Township.—Lots N. half 8, 9, con. 2, block 3.—Temiskaming Dist.	1	1	Joseph Myers, New Liskeard, Ont.	Pine, \$4.05 per M. ft. B.M.; spruce, poplar and basswood, \$3.90 per M. ft. B.M.; other timber, \$2.00 per M. ft. B.M.; ties, 25c. each; spruce pulpwood, 80c. per cord; other pulpwood, 40c. per cord; fuelwood, 10c. per cord; cedar posts, 5c. <i>Cedar poles</i> , 30 ft. and less, 25c. each; 31 to 40 ft., 30c. each; 41 to 50 ft., 45c. each; 51 ft. and over, 50c. each; all in addition to Crown dues.	General Logging.	3144-A
1923 Dec. 7.	1923 Dec. 18.	Teck Township.—Claims L-2962 to L-2965.—Temiskaming Dist.	1/2	1	John Clark, Englehart, Ont.	Pine, \$4.50 per M. ft. B.M. in addition to Crown dues.	Ties.	10857
1923 Dec. 15.	1923 Dec. 29.	Bigsby Island.—Part of.—Lake of the Woods, Kenora Dist.	5	2	H. A. Saunders, Rainy River, Ont.	White pine, \$4.00 per M. ft. B.M.; spruce, \$3.00 per M. ft. B.M.; poplar, \$2.50 per M. ft. B.M.; spruce pulpwood, 90c. per cord; other pulpwood, 90c. per cord; cedar posts, 1/5th of a cent each; all in addition to Crown dues. <i>Cedar poles</i> , 31 ft. and less, 28 3/4c. each; 31 to 40 ft., 62 1/2c. each; 41 to 50 ft., 93 3/4c. each; 51 ft. and over, \$1.25c. each. These prices including the Crown dues; cordwood, 30c. per cord, in addition to Crown dues.	Cedar and Pulpwood	4591-A
1923 Dec. 18.	1924 Jan. 3.	Oscar Station, C.N.R.—Thunder Bay Dist.	6	2	J. C. Greer, Walsh Block, Port Arthur, Ont.	Spruce pulpwood, \$1.00 per cord; other pulpwood, \$1.00 per cord; ties, 20 1/2c. each; all in addition to Crown dues.	Ties and Pulpwood.	9391-A
1923 Dec. 26.	1924 Jan. 9.	Shedden Township.—Lot 6, con. 6.—Algoma Dist.	1/2	2	Arthur N. Dudley, Toronto, Ont.	Pine, \$3.00 per M. ft. B.M., in addition to Crown dues.	Logging.	23848
1923 Dec. 19.	1924 Jan. 3.	Drury Township.—Lot 4, con. 6.—Sudbury Dist.	1/2	1	Mark Rogers, Parry Sound, Ont.	Spruce, poplar and basswood, 50c. per M. ft. B.M.; balsam, 50c. per M. ft. B.M.; other sawlog timber, 25c. per M. ft. B.M.; spruce pulpwood, 10c. per cord; other pulpwood 10c. per cord; ties, 2c. each. <i>Cedar poles</i> , all lengths, 5c. each; all of the above prices in addition to Crown dues.	General Logging.	5327

Appendix No. 41—Continued

Timber sales.—From 1st November, 1923, to 31st October, 1924

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1924 Jan. 7.	1924 Jan. 17.	Grant Township.—N. parts 11 and 12, con. 5; and 7, 8, 10, 11, 12, con. 6.—Nipissing Dist.	2	2	J. W. Lalonde, Sturgeon Falls, Ont.	Pine and jackpine, \$12.50 per M. ft. B.M.; other timber except pulpwood, \$2.00 per M. ft. B.M. Cedar poles, 30 ft. and less, 10c. each; 31 to 40 ft., 20c. each; 41 to 50 ft., 50c. each; 51 ft. and over, \$1.00 each; all of the above in addition to Crown dues.	Cedar and Ties.	35099
1924 Jan. 10.	1924 Jan. 22.	Lundy Township.—N. half 3, con. 4 S. half 3, con. 5.—Temiskaming Dist.	1/2	2	W. G. & R. J. Pacey, Milberta, Ont.	Pine, \$3.58 per M. ft. B.M., in addition to Crown dues.	Sawlogs.	16080
1924 Jan. 7.	1924 Jan. 17.	Playfair Township.—Lot 13, con. 2.—Cochrane Dist.	1/2	1	Joseph Leduc, Ramore, P.O. Ont.	Pine, \$1.15 per M. ft. B.M.; spruce, poplar and basswood, \$1.10 per M. ft. B.M.; other timber, \$1.05 per M. ft. B.M.; spruce and other pulpwood, \$1.00; ties, 10c. each; all in addition to Crown dues.	General	23374
1924 Jan. 30.	1924 Feb. 15.	Ycliffe Siding on C.N.R.—Small block lying east of timber berth Z.D.—Kenora Dist.	2	1	New Ontario Contracting Co., Ltd., Molson Bank, Port Arthur, Ont.	Jackpine, \$2.50 per M. ft. B.M.; spruce, \$2.00 per M. ft. B.M.; ties, 5c. each; spruce pulpwood, 20c. per cord; other pulpwood, 20c. per cord; fuelwood (soft), 10c. per cord; all in addition to Crown dues; fuelwood (hard), 50c. per cord, Crown dues only.	General.	
1924 Apr. 2.	1924 Apr. 23.	Balfour Township.—W. half lot, 2 con. 6.—Sudbury Dist.	1/2	1	Louis Gratton, Chelmsford, Ont.	Fuelwood (soft), 10c. in addition to Crown dues.	Fuelwood	37093

1924 Apl. 23.	1924 May 10.	McCann Township.—N. part 6; N. part 7; S. part 7; N. part 8, con. 3.—Cochrane Dist.	1	1	R. S. Potter, Matheson, Ont.	Jackpine, \$2.00 per M. ft. B.M.; spruce, poplar and basswood, \$2.00 per M. ft. B.M.; other timber, \$2.00 per M. ft. B.M.; ties, 12c. each; spruce pulpwood, 70c. per cord; other pulpwood, 60c. per cord; fuelwood, 50c. per cord; all in addition to Crown dues.	General.	44718
1924 June 6.	1924 July 4.	Thornloe Township.—West part.—Temiskaming Dist.	15	3	Alex, Feldman, Schumacher, Ont.	Red and white pine, \$6.50 per M. ft. B.M., over upset price of \$9.00; jackpine, \$3.00 over upset price of \$2.50; spruce, \$2.50 over upset price of \$3.00; spruce pulpwood, 15c. per cord over upset price of 30c; other pulpwood, 35c. per cord over upset price of 25c. <i>Cedar poles</i> , 30 ft. and less, 40c. each over upset price of 10c; 31 to 40 ft, 55c. each over 20c.; 41 to 50 ft., 95c. over 30c; 51 ft. and over, \$1.15 over 35c.; all of the above in addition to Crown dues. Fuelwood, 5c. in addition to Crown dues of 25c.	Ties and Pulpwood.	34911
1924 June 30.	1924 July 18.	Scoble Township.—Patented Mining Claims.—57-T; 150-T; 151-T; 152-T; 153-T; 148-T; R-25; R-27; R-28; R-43; R-44; R-45; R-46; R-47; R-48; poplar only on lot 7, con. 6, Scoble.— Thunder Bay Dist.	3 1/4	1	Shuniah Lumber Co., Ltd., Port Arthur, Ont.	Jackpine, \$1.00 per M. ft. B.M. over upset price of \$4.00, in addition to Crown dues; pop- lar, \$3.00 only, in addition to Crown dues.	General Logging.	11227
1924 June 27.	1924 July 29.	Nightingale Township.—Part. —Algonquin Park.	49	3	John S. L. McRae, Whitney, Ont.	Pine, \$4.00 per M. ft. B.M. over upset price of \$10.00; birch, maple and beech, \$2.25 over up- set price of \$4.50; hemlock, \$3.50 over upset price of \$4.00; spruce and balsam, \$1.00 over \$7.00; basswood, ash and cedar, \$2.00 over \$4.00; all in addition to Crown dues.—(On birch and beech fixed at \$2.50 Crown dues).	General Logging.	30351
1924 June 10.	1924 July 29.	Berth 2-F. Miss. Reserve.— Algoma Dist.	36	2	J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, \$1.35 per M. ft. B.M. over upset price of \$7.00; jackpine, 50c. over \$3.00; spruce pulpwood, 50c. per cord over over upset price of 50c. per cord; other pulp- wood, 25c. per cord over 50c; <i>Cedar poles</i> , 30 ft. and less, 25c. over 25c; 31 to 40 ft., 25c. over 50c.; 41 to 50 ft., 25c. over 75c.; 51 ft. and over, 25c. over \$1.00; all of the above prices in addition to crown dues.	Sawlogs.	54109

Appendix No. 41—Continued
Timber sales.—From 1st November, 1923, to 31st October, 1924

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1924 June 10	1924 July 29	Berth 3-E. Mississauga Reserve.	36	2	J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, \$1.30 per M. ft. B.M. over upset price of \$7.00; jackpine, 50c. over \$3.00; spruce pulpwood, 50c. per cord over upset price of 50c. per cord; other pulpwood, 25c. over 50c. per cord. <i>Cedar poles</i> , 25c. each over and above upset price of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	54109
1924 June 10.	1924 July 29.	Berth 3-F. Mississauga Reserve—Algoma Dist.	36	2	J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, \$1.27 per M. ft. B.M. over upset price of \$7.00; jackpine, 50c. over \$3.00; spruce pulpwood, 50c. per cord over upset price of 50c. per cord; other pulpwood, 25c. over 50c. per cord. <i>Cedar poles</i> , 25c. each over and above upset price of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	54109
1924 July 2.	1924 July 30.	Spohn Township.—S. half 1, con. 8.—Rainy River Dist.	1/2	2	P. M. Dalseg, McInnes Creek, Ont.	Lump sum, \$210.00 in addition to Crown dues.	General.	20690
1924 July 29.	1924 Aug. 12.	McTavish Township.—Part 10, con. 6.—Thunder Bay Dist.	1/2	2	E. E. Johnson, Port Arthur, Ont.	Spruce, \$7.50 per M. ft. B.M.; cedar, \$5.50; spruce pulpwood, \$1.35 per cord; other pulpwood, 90c. per cord; cedar posts, 1c. each. <i>Cedar poles</i> , 30 ft. and less, 15c.; 31 to 40 ft., 20c.; 41 to 50 ft., 25c.; 51 ft. and over, 35c.; all of the above in addition to Crown dues.	Pulpwood.	19756

1924 Aug. 11.	1924 Sept. 2.	Haycock Township.—N. half 6, N. half 7, con. 3.—Kenora Dist.	1/2	2	Joseph Peterson, and M. Sam Hancharyk, Kenora, Ont.	Jackpine, upset price of \$9.50 per M. ft. B.M., in addition to Crown dues; spruce pulpwood, 10c. per cord, in addition to the upset price of 70c., and also Crown dues.	Ties.	24421
1924 Aug. 7.	1924 Sept. 2.	Kittson Township.—Part of Temagami Forest Reserve.—Temiskaming Dist.	27	5	D. McLellan, Latchford, Ont.	Red and white pine, \$4.26 per M. ft. B.M., over upset price of \$12.00; jackpine, \$4.76 over \$6.00; spruce, \$2.36 over \$9.00; cedar posts, 5c. each over 2c. <i>Cedar poles</i> , 30 ft. and less, 10c. each; 31 to 40 ft., 10c. each; 41 to 50 ft., 15c. each; 51 ft. and over, 15c. each; in addition to upset prices of 25c., 50c., 75c., and \$1.00; all of the above prices are in addition to Crown dues.	General Logging.	28722
1924 Aug. 19.	1924 Sept. 10.	Blake Township.—W. half 7, 8, E. half 9, con. 9, Crooks Township.—N. part 1, con. 1.—Thunder Bay Dist.	1 1/4	1	Ben Renshaw, and C. Duesing, Fort William, Ont.	Pine, upset price of \$7.50 in addition to Crown dues.	Sawlog.	13557
1924 Aug. 2.	1924 Aug. 25.	Berth 4-E.—Mississauga Forest Reserve.—Algoma Dist.	36	1	Bishop Lumber Co., transferred to J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, 13c. per M. ft. B.M. over upset price of \$7.00; jackpine, 10c. over \$3.00; spruce pulpwood, 5c. per cord over 50c.; other pulpwood, 5c. per cord over 50c. per cord. <i>Cedar poles</i> , 5c. each over and above upset prices of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	55514
1924 Aug. 2.	1924 Aug. 25.	Berth 4-F.—Mississauga Forest Reserve.—Algoma Dist.	36	2	Bishop Lumber Co., transferred to J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, 53c. per M. ft. B.M. over upset price of \$7.00; jackpine, 10c. over \$3.00; spruce pulpwood, 5c. per cord over 50c.; other pulpwood, 5c. per cord over 50c. per cord. <i>Cedar poles</i> , 5c. each over and above upset prices of 25c., 50c., 75c. and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	55514
1924 Aug. 2.	1924 Aug. 25.	Berth 5-E.—Mississauga Forest Reserve.—Algoma Dist.	36	1	Bishop Lumber Co., transferred to J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, 23c. per M. ft. B.M. over upset price of \$7.00; jackpine, 10c. over \$3.00; spruce pulpwood, 5c. per cord over 50c.; other pulpwood, 5c. per cord over 50c. per cord. <i>Cedar poles</i> , 5c. each over and above upset prices of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	55514

Appendix No. 4I—Continued
Timber areas disposed of from 1st November, 1923, to 31st October, 1924

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1924 Aug. 2.	1924 Aug. 25.	Berth 5-F.—Mississauga Forest Reserve.—Algoma Dist.	36	2	Bishop Lumber Co., transferred to J. J. McFadden, Ltd., Spragge, Ont.	Red and white pine, 33c. per M. ft. B.M. over upset price of \$7.00; jackpine, 10c. over \$3.00; spruce pulpwood, 5c. per cord over 50c.; other pulpwood, 5c. per cord over 50c. per cord. Cedar poles, 5c. each over and above upset prices of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	55514
1924 Aug. 21.	1924 Sept. 25.	Studholme Township.—Cochrane Dist.	81	1	Caithness Lumber Co., Ltd., Toronto	Jackpine, 50c. per M. ft. B.M. over upset price of \$2.00; poplar and other timber, 25c. over \$1.00; spruce pulpwood, 5c. per cord over upset price of 50c. per cord. Other pulpwood, 5c. over 50c; cedar posts, 1c. each. Cedar poles, A, B and C, 5c. each, and D, 10c. each over upset prices of 25c., 50c., 75c., and \$1.00. All of the above prices in addition to Crown dues.	General Logging.	47192
1924 Sept. 13.	1924 Oct. 1.	Grenfell Township.—Mining Claim 13038; 13412; 8261; 8236½; 14097; 13266; 12109; 13314; 13306; 11058; 11059; 14088. Teck Township.—Mining Claim 13411.—Temiskaming Dist.	1	1	John Clark, Englehart, Ont.	Jackpine and spruce, upset price of \$4.50 per M. ft. B.M.; poplar, \$1.00 per M. ft. B.M.; spruce and other pulpwood, 45c. per cord; all in addition to Crown dues.	Ties and Pulpwood.	10857
1924 Sept. 9.	1924 Oct. 1.	Merrick Township.—Dist. Nipissing.	36	1	William Holden, South River, Ont.	Birch, \$1.26 per M. ft. B.M. over upset price of \$4.00 in addition to Crown dues.	Hardwood	37000

1924 Sept. 10.	1924 Oct. 1.	S.W. Part Berth G-33, Foot-print Lake.—Rainy River Dist.	1	1	(George W. Hughes, Barwick, Ont.	Red and white pine, \$1.60 per M. ft. B.M.; jackpine, 50c. both in addition to Crown dues; ties, 10c. each, Crown dues only.	General.	39847
1924 Sept. 10	1924 Oct. 1	North portion Berth N-7 and area north thereof.—Rainy River Dist.	7	1	George W. Hughes, Barwick, Ont.	Red and white pine, \$1.60 per M. ft. B.M.; jackpine, 50c., both in addition to Crown dues; ties, 10c. each, Crown dues only.	General.	39847
1924 Sept. 23	1924 Oct. 26	McCann Township.—Lots and part lots, Cons. 1, 2 and 3. Cochrane Dist.	4	1	R. S. Porter, Matheson, Ont.	Jackpine, \$1.00 per M. ft. B.M.; spruce pulpwood 20c. per cord, both in addition to Crown dues.	General.	44718
1924 Sept. 9	1924 Oct. 1	Area lying north of the Rainy Lake Pulp Limit.—Kenora Dist.	38	1	The Border Lumber Co., Ltd. Rainy Lake, Ont.	Red and white pine, 30c. per M. ft. B.M. over upset price of \$1.00; jackpine, 30c. over 50c.; spruce pulpwood, 5c. per cord over 20c. per cord; other pulpwood, 5c. per cord over 20c. per cord; all of the above prices in addition to Crown dues.	General.	5454
1924 Sept. 2.	1924 Oct. 6.	Berth 48.—Quetico Forest Reserve.—Rainy River Dist.	12	2	Shevlin Clarke Co., Ltd., Fort Frances, Ont.	Red and white pine, 25c. per M. ft. B.M. over upset price of \$11.00; jackpine, 25c. over \$4.00; spruce pulpwood, 10c. per cord over 80c. per cord; all of the above prices in addition to Crown dues.	Logging.	54355
1924 Oct. 3.	1924 Oct. 15.	Mining Locations JES-62 JC-81, JC-97, and FM-145, adjoining Timber Berth "A" on the south.—Kenora Dist.	1	1	Keewatin Lumber Co., Ltd. Kenora, Ont.	Red and white pine, upset price of \$6.75 per M. ft. B.M.; cedar posts, upset price of 2c. each, and Cedar Poles, upset price of 25c. each, all in addition to Crown dues.	Logging.	55347
1924 Sept. 29.	1924 Oct. 15.	Area north of Potts Township and west of Clearwater Lake.—Rainy River Dist.	6	1	George W. Hughes, Barwick, Ont.	Red and white pine, \$1.10 per M. ft. B.M. over upset price of \$3.00; jackpine, 60c. over \$2.00; cedar, tamarac and other log timber (Crown dues only), \$1.50; cedar posts, upset price of 1c. in addition to Crown dues of 2c. Cedar Poles.—Upset price of 15c. each, in addition to Crown dues of 25c., 50c., 75c. and \$1.00. Pine timber prices are in addition to Crown dues.	General.	9161-A

Appendix No. 41—Continued
Timber areas disposed of from 1st November, 1923, to 31st October, 1924.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To whom sold	Price Paid	Proposition	File No.
1924 Oct. 1.	1924 Oct. 15.	Area north of Indian Reserve.—D-16 and C-18, between Baffin Lake and Rainy Lake.—Rainy River Dist.	8	1	Border Lumber Co., Limited, Rainy Lake, Ont.	Red and white pine, 60c. per M. ft. B.M.; jackpine, 50c.; spruce, 50c.; pulpwood, 5c. per cord; all of the above prices in addition to Crown dues.	Logging.	56224
1924 Oct. 1.	1924 Oct. 20.	Limit north of Elephant Lake, south of English River, and east of Timber Berth G-59-A., designated as Berth M-4.—Kenora Dist.	13	1	George E. Farlinger, Sioux Lookout, Ont.	Jackpine, \$1.75 per M. ft. B.M. over upset price of \$6.00; spruce, 20c. per cord over 50c. per cord; balsam, 5c. per cord over 40c. per cord; all above prices in addition to Crown dues.	Logging.	21140
1924 Oct. 11.	1924 Oct. 25.	Proudfoot Township.—Lot 3, Con. 1.—Parry Sound Dist.	1/2	1	Shortreed Lumber Co., Ltd., Kearney, Ont.	Hemlock, \$2.50 per M. ft. B.M.; spruce and balsam, \$3.00; birch, \$4.00; fuelwood, 50c. per cord; all in addition to Crown dues. (Dues fixed on birch, \$2.50.)	Hardwood.	20281
1924 Oct. 6.	1924 Oct. 27.	Berth M-2, south of Berth Z-D, Dominion Lake.—Kenora Dist.	7	1	New Ontario Contracting Co., Ltd., Port Arthur, Ont.	Jackpine, upset price of \$5.50 per M. ft. B.M.; spruce pulpwood, 50c. per cord, being upset price only; both of the above in addition to Crown dues.	Ties and Pulpwood.	7608
1924 Oct. 1.	1924 Oct. 17.	Mulligan Township.—Lots 1 and 2, Cons. 3 and 4.—Temiskaming Dist.	2	1	Tomstown Lumber Co., Ltd., Tomstown, Ont.	White pine, \$1.00 per M. ft. B.M. over upset price of \$3.00; spruce, \$1.00 over \$2.50; cedar, \$1.00 over \$1.50; spruce pulpwood, 20c. per cord over upset price of 20c. per cord, all in addition to Crown dues.	General Logging.	23516

1924 Sept. 17.	1924 Oct. 8.	Area between Wako and Hunt on C.N. Railway, designated Berth M-1.—Kenora Dist.	30	1	A. B. Evans, and Emil Anderson, Fort William, Ont.	Pine, upset price of \$7.50 per M. ft. B.M.; poplar, 25c., upset price only; spruce pulp- wood, 50c. per cord, upset price only; poplar pulpwood, 10c., upset price only; other pulp- wood, 25c., being upset price only. All of the above in addition to Crown dues. Ties, 6c. each; fuelwood, 5c. per cord, both in addition to Crown dues.	Ties and Pulpwood.	54319
1924 Oct. 7.	1924 Oct. 27.	Stratton Township.—Part of Algonquin National Park.	60	1	The Canadian Splint & Lumber Corporation, Ltd., Pembroke, Ont.	Poplar and basswood, \$4.00 per M. ft. B.M.; poplar and basswood, \$1.50 per cord, both in addition to Crown dues.	Matchwood.	38588

Timber areas disposed of from 1st November, 1923, to 31st October, 1924.

When granted.	Locality.	Area sq. miles	To whom Granted	Price paid	Proposition	File No.
By Order-in-Council, dated 16th July, 1924, approving Agreement dated 12th July, 1923.	District of Cochrane.	2466	Abitibi Power & Paper Co., Ltd., Iroquois Falls,	Rates to be fixed from time to time by Lieu- tenant-Governor in Council. Present rates: Spruce pulpwood, 80c. per cord; other pulp- wood, 40c. per cord.	Pulpwood.	47622

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1925

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

Printed and Published by Clarkson W. James, Printer to the King's Most Excellent Majesty

1926



TO HIS HONOUR HENRY COCKSHUTT, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1925.

JAMES LYONS,
Minister.

HONOURABLE JAMES LYONS,
Minister of Lands and Forests.

I have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1925.

W. C. CAIN,
Deputy Minister.

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Report of the Minister of Lands and Forests of the Province of Ontario

For the Year ending 31st October, 1925.

LAND TRANSACTIONS

The general demand for settlers' lands in Northern Ontario, especially in the Clay Belt region, continued throughout the past year, though in a somewhat less degree than the previous year. Several important colony settlement propositions were submitted and considered, always with due regard for the natural or acquired capacity as well as the financial bona fides of the would-be settlers. It is conceded that our agricultural resources are so extensive and the possibilities of their development so obvious that pioneer settlers are a necessity. But until such time as there is a pronounced clear-cut immigration policy established by the Federal Government that invites and encourages the hardy type of pioneer, little hope can be held out for much beyond a very gradual development of the vast acreage in the Great Clay plains that some day must play a large part in feeding the teeming millions of Europe. The greatest caution is being exercised in checking up purchasers of pulpwood areas in the Clay Belt to eliminate the wood pirate. Insistence on reasonable compliance with the Regulations is having its good results and numbers of spurious holders have been cancelled and the land resumed by the Crown.

The Supervisor of Settlement, appointed in 1924, has supplied the hitherto missing link between the Government and the settler. The effect of the direct touch is already felt. Colonel Smyth is applying his many years' experience in the north country to the improvement of the pioneers' conditions, closely studying their needs and co-operating with them.

New regulations were adopted during the year under which the area in the Clay Belt to which an applicant is limited was reduced from a half lot of 160 acres to a quarter lot of 80 acres, more or less. The change aims at more intensive cultivation in areas practically 100 per cent. fit for production, more compact settlement with resultant improved social life, and more economical road building and local improvements, all for the betterment of the agricultural community.

Certain group settlements established in Thunder Bay District and in the Clay Belt, along the National Transcontinental, are progressing favourably and give reason to hope for permanent farm communities. The newcomers are skilled with the axe and saw and appear to realize that hewing out and maintaining homes in new unbroken lands involve trials and hardships, the enduring of which paves the way for permanent settlements with high standards of industry and thrift.

The Government is doing its utmost to make more happy the lot of the settler of Northern Ontario by building roads, using the settlers on construction, providing certain stock at cost, making loans on easy repayment terms, estab-

lishing experimental farms at strategic points and making substantial grants for education. Encouragement is given the settlers in the disposition of their pulpwood, by the Crown urging the large pulp and paper manufacturers to buy their wood at equitable prices.

In the various districts wherein farm lands are opened for settlement at 50 cents an acre subject to the performance of certain duties, 810 individuals, less than the previous year by 400, purchased lots, of which 65 per cent. went to the Cochrane District in the Clay Belt along the Transcontinental, 12 per cent. to the Thunder Bay section, over 5 per cent. to Nipissing and the balance to the various other districts. Free grant locations were made to some 535 persons, nearly 200 less than the year 1924, the largest percentage, as might be expected, going to the northern and northwest part of the Province, including Rainy River and Kenora Districts.

While a noticeable reduction is observed in the numbers acquiring land throughout 1925 from 1924, it must be recalled that the last mentioned year was the best since the war and, pending some important movement of immigrant population of the hardy pioneer type, it can scarcely be expected that greater demands will be made for colonizing areas. Complete tables in detail showing the disposition of land for settlement purposes will be found in appendices Nos. 10 and 11.

CLERGY, COMMON, AND GRAMMAR SCHOOL LANDS

The gradual elimination of this class of land by cleaning up old titles limits the transactions and reduces the revenue therefrom to a very small item, some \$2,315.56.

UNIVERSITY LANDS

Under this head \$1,517.05 was collected as against \$1,290.19 for the year 1924.

SALE LANDS

The total acreage sold for farming, townsite, town lots and tourist purposes comprised some 117,488.39 acres. The total amount collected on such sales and former ones was \$100,042.73, about \$19,000 less than for the previous year. In all, 8,139.15 acres were leased for a variety of purposes and the receipts for all leasehold areas amounted to \$119,778.07, or \$30,000 in advance of collections for similar purposes during 1924.

MILITARY GRANTS

By an amendment in 1922, to the Veterans' Land Grant Act, Cap. 6, 1 Edw. VII, the time for making locations expired and now the holder of a certificate has only the privilege of surrendering it for a cash consideration of \$50 or applying it as payment on Crown land at its face value of \$80. During the year five certificates were surrendered and eight patents were issued. Under the Act approximately 13,998 certificates were issued and all these have now been absorbed, with the exception of about 1,045 which are still outstanding.

The above has no reference to the special privilege accorded returned Canadian oversea soldiers of the Great War, who are entitled to acquire, free of charge, a farming location in Northern Ontario, subject, however, to all settlement regulations, which require actual residence, systematic clearing and

real farming. Ninety-three returned men took advantage of this opportunity during the year, as against 131 last year, but because of failure to comply with the regulations, seventy-two lost their locations as against eighty-two for 1924.

TOURIST LANDS

The educational campaign conducted last year by various means caused an unprecedented influx of tourists. This was reflected in the number of letters received, individual interviews given and applications for summer sites made.

The Provincial parks, Algonquin in the east, Rondeau in the southwest, and Quetico in the northwest, were attractive points where strangers longed to linger.

The wild life of the parks, carefully protected by special regulations, their scenic beauty, preserved in its natural state, and varied allurements are being given continued steady publicity through the press and radio by those who have come and have seen and have been conquered. Choice parcels of land in the parks are leased at reasonable rentals under fair building restrictions.

Our extensive forest reserves were visited by thousands during the summer, employing their time in deep trolling for the lake trout or casting for the speckled beauties. Hunters found within the reserves ample opportunities for their marksmanship and many a moose and unsuspecting deer paid the penalty.

To meet the growing demand for canoe trips and summer outings the Department of Lands and Forests is considering the advisability of employing photographic means, in collaboration with our aircraft service, of detailing our parks and thus getting a perfect map of all waters and water routes therein. The tourist or health seeker is with us to stay and we must get ready for more of his friends.

CROWN SURVEYS

Surveys on Crown lands were performed where it was deemed expedient for the necessary disposal of lands for settlement, summer resort and mining. Surveys were also continued traversing some of the larger rivers and the extension of base and meridian lines in Northern Ontario.

Special subdivisions of areas on the Shebandawan and Kashabowie Lakes in the Thunder Bay region were made and several hundred parcels, averaging $1\frac{1}{2}$ to 2 acres, were released for sale to tourists at reasonable prices subject to fair building conditions.

It is proposed to have land surveyors collaborate the ensuing year with aircraft parties to establish ground controls and make photographic surveys of certain areas to enable the making of up-to-date maps of certain rivers, lakes and streams hitherto not traversed or plotted.

WATER POWERS

The only new and important water power activity in the northern part of the Province was that of the Hydro-Electric Commission at Nipigon. The present plant with a 50,000 horsepower development is being augmented by two additional units, thus enlarging the capacity to 72,000 horsepower, although this will not be sufficient to fully meet the requirements consequent upon the expected pulp and paper expansion at the head of the Lakes, a fact which amply proves the wisdom of those who predicted success for the undertaking when pessimistic critics sought to belittle the proposition.

The assured expansion of the paper industry at Kapuskasing on the Trans-continental also involves the necessity of a large and expensive development of power at Smoky Falls.

The recent gold discovery in the Red Lake District of Patricia may likewise, if its actual development, as contemplated, results and permanency of the camp is established, lead to additional water powers in that region being sought and used.

Considerable care is being exercised with regard to these potential powers and the policy of the Government is to so dispose of them that they shall always remain the inalienable property of the Crown and be subject only to lease under such equitable stipulations as will assure a consistent annual revenue to the Province and business stability to the industries depending thereon.

LOGGING AND LUMBERING

Although indications in the early fall of 1924 pointed towards a considerable diminution in the output of pine logs for lumber and other products, the actual operations for 1925, receiving an unexpected impetus as the season advanced, resulted in the production of approximately the same quantities as the previous year, some 337 million feet, of which 265 million feet comprised red and white pine, against 276 million for the previous year and slightly over 72 million feet of jack pine as against 61 million feet for the year 1924. The tie operations, though less extensive than for the season immediately preceding, nevertheless included an output of almost $2\frac{3}{4}$ million pieces or less by about 300 thousand, the contracts with the railways having been somewhat curtailed.

Log timber, other than pine, was operated to the extent of 78 million feet, or 17 million feet beyond that taken out during 1924.

The pulpwood returns from Crown lands was less than last year by 250,000 cords, there being only 433,146 cords cut, an evidence, no doubt, of larger purchases by the pulp companies from settlers and holders of privately owned lands.

Lumber companies express the feeling that, while the past few years have not been promising from a market point of view, signs are beginning to show a tendency in the direction of an upward movement. Eastern pine and spruce lumber producers have serious competition to meet from Western and Southern producers and yet are animated with the lumberman's firm spirit that the future may be better and brighter than predicted in some quarters. A real campaign of publicity is on foot to buy products manufactured from raw material taken from the home forests rather than to favour foreign products of less durability.

Added interest is being shown in the hardwood line, judging from the enquiries made and the expressed desire of certain manufacturers to provide themselves with supplies. Certain small hardwood areas were disposed of at reasonably good stumpage prices ranging from \$4 per thousand feet B.M. to \$7.50 per thousand feet B.M., in addition to dues of \$2.50 per thousand feet. This hardwood, in pursuance of the special Hardwood Act passed two years ago, will be all manufactured within the Province of Ontario.

Investigations are being pursued with a view to determining on the advisability of encouraging the establishment of a large hardwood manufacturing plant on the north shore in Algoma District, though actual delimitation of areas and laying down conditions will be worked out in due time.

TIMBER SALES

Exclusive of the areas in the Nipigon region and Kapuskasing watershed, where certain quantities of pulpwood were offered for sale for pulp and paper manufacturing, approximately sixty sales were consummated, the smallest area being one-quarter square miles and the largest 216 square miles, the latter being an area overrun by fire a previous season. Fair prices were received for the timber under a competitive basis, the upset price principle adopted by the Government proving efficacious from a revenue-producing point of view.

Care was exercised in the offering of timber and special consideration given to the desire to provide, as was pointed out in last year's report, opportunities to going concerns of bidding on allotments for the continuance of their industries and maintaining populous centres, the existence of which depend so much upon the logging and lumbering business. In certain localities, where the timber was found mature and deteriorating, it was placed on the market and sold, the areas being required to be properly cleaned and all debris regularly removed.

The functioning of the Inspector of Operations, an experienced bushman, has materially aided in bringing about a much more effective co-operation between the timber licensees and the Departmental officials. The practical and theoretical is being combined with good results that merit the prediction of a successful natural reforestation of the cutover areas provided fire can be restrained.

A complete list of the timber transactions may be observed in Appendix No. 29.

PULP AND PAPER INDUSTRY

While no new mills were erected during the year except a small unit of about eight to ten tons a day on Manitoulin Island by a company who are securing their supply from settlers, considerable activity was shown by the existing plants, all of which operated up to their former capacity. Certain established concerns, like the Fort William Paper Company at Fort William, the Thunder Bay Company at Port Arthur, and Nipigon Corporation, Limited, at Nipigon, were all practically directly dependent upon the wood secured from settlers and private owners of timber lands, no Provincial Crown areas having been acquired by them.

Following a careful cruise and estimate of the entire Nipigon region contiguous to these and the other established plants such as the Provincial Paper mills, whose concession was limited as to cordage, the Government called for tenders, the sale closing September 10th, 1925. Areas also in the Ground Hog and Kapuskasing watersheds in Cochrane district were included in the advertisement. A wide departure in the method of sale was made. Heretofore areas were specifically delimited and, without particular regard to the cordage involved or the lifetime of the industry, certain building expenditures were called for. The new conditions invited all interested parties to definitely state their places of building, extent of same, size of plant, cordage requirements, expenditure involved and labour concerned, the Crown reserving to itself the right to define the areas based upon the cordage requirements for a fixed period and to designate each year the exact portion over which operations are to be conducted.

Four tenders were accepted in the Nipigon region and one in the Cochrane district, those in the former being Thunder Bay Company, Nipigon Corporation, Limited, Provincial Paper Mills, Limited, and Fort William Paper Company, and one in the latter, the Spruce Falls Company, at present with a plant at Kapuskasing.

Should the agreements to be entered into by the Crown with these companies be executed before the Report goes to print, they may appear herein.

In all these agreements the companies are required to manufacture every stick of pulpwood into the finished article, paper, and not merely pulp. In other words, the development of home industry to the limit is the new slogan.

The newsprint production in Ontario at present is approximately 2,600 tons a day. Under the new agreements, to be made by the Government, the daily output will be increased to 4,500 tons, this enlarged production materially benefitting the Hydro-Electric Power situation at the head of the Lakes, where additional development is being proceeded with to meet the growing requirements. At Kapuskasing the Spruce Falls Company are preparing to energetically proceed with their new undertakings, which involve a large expenditure in the harnessing of Smoky Falls power and the building of sixty miles of railway and transmission line from the Falls to Kapuskasing.

With this substantial increase in the paper development, adding to the daily output alone over 2,200 tons of mechanical and sulphite pulp and 2,000 tons of newsprint, will come an increase in commerce, addition to the railway tonnage, a general stimulation of business, the adoption of sane and modern methods of timber conservation, and a resultant maintenance of a consistent trade balance with our leading newsprint customers to the south.

FOREST CRUISING AND ESTIMATING

Continuing the practice now followed for some years, all areas were duly cruised and estimated before sales of timber were advertised. In pursuance of a policy adopted in 1923 in all important timber limits offered, subject to annual licenses, the estimate of the kinds and quantities of timber are specified and an upset price fixed, thus providing the prospective bidder a basis of calculation without undertaking intensive surveys. These cruises and estimates were made through the District Crown Timber Agents. Mapping of important forest types was carried on through the Forestry officials working in conjunction with the Provincial Aircraft Service and investigative survey work, and in this way over 5,000 square miles was covered at a very low acreage cost. For particulars see Appendix No. 28.

FOREST FIRE PROTECTION

Several exceptionally dry periods occurred during the season that tested the fire-fighting units to the limit, but although called upon to perform herculean tasks under almost impossible conditions, the staff succeeded in confining the fire scourge to limited areas.

The Air Patrol Service, working in unison with the land force, proved its value throughout the trying time by not only detecting incipient fires but actually on different occasions suppressing them. The air craft owned and operated by the Province has already had a most salutary effect upon the morale of the whole country covered by its operations. The actual loss of commercial timber due to fires the past summer was comparatively small, as the areas burnt were largely cut-over sections, slashed lands, and barren sections, but these fires had to be fought to protect adjacent valuable yields of virgin timber and second growth. Of the total acreage overrun by fire, but 4.7 per cent. was timber land, as against 21 per cent. for the preceding year and 28 per cent. for the year 1923. Confining the burn to such a restricted area means a tremendous saving in actual money that is almost impossible to adequately estimate. The

expenditures on fire protection were considerably higher than last year, but this was largely due to the capital outlay on the new hangar built at Sault Ste. Marie, where, under one roof, eighteen seaplanes are comfortably housed and workshops, store rooms, office apartments are adequately provided. This structure is the only one of its kind in Canada and has no superior on the continent, and this, our centre air base, is the only air harbour in the whole of Canada classed as A-1.

In addition to patrolling for and suppressing fires, the seaplanes are utilized in surveying, sketching and photographing timber areas and other natural resources. The vast areas covered and the time saved, as against the old system of cruising large limits, means the perfecting of an inventory of resources that enables the Crown to provide for the early development of its potentialities and the establishment of going concerns.

Several commercial enterprises were undertaken by the flying corps and the results attained exceeded expectations. The transportation of men and supplies by air ships afforded mining men the opportunity of getting access to and undertaking extensive development work in Red Lake District, where commercial rates were imposed and the aggregate receipts in connection with same substantially aid in carrying interest charges on the investment. For detailed report see Appendix No. 28.

REFORESTATION

Intensive work was continued at the three Provincial Forest Stations of St. William in Norfolk County, Orono in Durham County and Midhurst in Simcoe County, while considerable transplanting was conducted at the Transplant Nurseries situated in Prince Edward County at the Sand Banks and in Grenville County at Kemptville. The nursery stock carried at the above mentioned stations approximates twenty-seven million conifers and two million hardwoods. For detailed information on this work and other branches covering municipal and private plantations, see Appendix No. 28.

COLONIZATION ROADS

The amount expended upon this service was \$474,409.34, as against \$447,444.66 during 1924. Of this total over 50 per cent. is directly chargeable to by-law requirements of municipalities under which the Crown spends an amount equal to that covered by vote of the township. Forty per cent. was directly granted and expended by the Province on the construction and maintenance of roads, the balance, 10 per cent., being conserved in the purchase of road-making machinery, inspection of roads and bridges, compensation to injured workmen and certain incidentals.

ACCRUALS AND COLLECTIONS

The largest revenue ever collected in the history of the Department of Lands and Forests was that received during the fiscal year ending 31st October, 1925, some \$5,013,867.85, exclusive of \$166,808.25 collected by the Northern Development. The total accruals from timber dues, ground rent, fire protection, bonus, etc., were \$4,420,271.17, as shown on statement under Appendix No. 7. On this Woods and Forests Account, including certain outstandings, the sum of \$4,610,922.53 was received. The sale of lands for agricultural townsites and

other purposes amounted to \$103,875.34. Rents on leasehold properties brought in \$119,778.07. From Parks casual fees and refunds the sum of \$179,291.91 was collected, making in all over five million dollars, as above stated. The above is a very creditable showing considering the uncertainty of the timber market, and the reduction in the number of farm lots sold.

DISBURSEMENTS

The total expenditure of the Department (excluding Northern Development) was \$2,845,762.20, or an increase of approximately \$250,000 over that for the year 1924. This is more than accounted for by the increase of some \$323,000 in fire ranging service, largely due to heavy capital expenditure incidental to the erection of the hangar and aircraft parking station. In 1924 the capital expenditure on fire ranging was but \$86,000, but in 1925 \$276,000, to which amount is chargeable the cost of the hangar, some \$178,000 in round figures. Some important additions were made to our fire-fighting equipment in the way of portable fire-fighting units, hose and over 200 new portable hand or force pumps. In practically one-half the items of service reductions are found. For complete statement of disbursements under Northern Development, see special report by Northern Development Branch.

APPENDICES

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1925.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
	Hon. James Lyons.....	Minister.....	1923, July 16	\$8,000 00	Superannuated as from June 1, 1925.
	F. H. Keefer.....	Legislative Secretary for Northern Ontario.....	1923, July 16	6,000 00	
	W. C. Cain.....	Deputy Minister.....	1903, March 1	5,400 00	
	F. J. Niven.....	Minister's Secretary and Secretary to Department.....	1897, May 27	3,000 00	
	A. Ferguson.....	Assistant to Deputy Minister.....	1915, Dec. 15	2,800 00	
	M. E. Bliss.....	Senior Clerk Stenographer.....	1909, Aug. 16	1,450 00	
Solicitor's Branch.....	E. Harrison.....	".....	1920, May 14	1,300 00	
	D. H. Hamlin.....	".....	1922, June 1	1,300 00	
	F. E. Titus.....	Solicitor to Department.....	1920, Mar. 2	3,500 00	
	B. Chambers.....	Clerk Stenographer.....	1917, April 24	1,050 00	
	S. Draper.....	Chief Clerk.....	1900, May 1	3,100 00	
	W. R. Ledger.....	Principal Clerk.....	1894, Feb. 15	2,400 00	
Lands Branch.....	C. E. Burns.....	".....	1897, July 29	2,400 00	
	W. S. Sutherland.....	Senior Clerk.....	1900, Mar. 18	2,000 00	
	J. B. Proctor.....	".....	1897, Jan. 15	2,000 00	
	A. E. Roe.....	".....	1906, Oct. 16	2,000 00	
	J. E. Drinkwater.....	".....	1907, Oct. 19	2,100 00	
	F. A. Lucas.....	".....	1906, Dec. 18	1,900 00	
	S. A. Platt.....	".....	1905, June 12	1,900 00	
	A. E. Robillard.....	Senior Clerk Typist.....	1894, May 4	1,900 00	
	E. F. O'Neil.....	Senior Clerk Stenographer.....	1902, July 7	1,400 00	
	S. Ross.....	".....	1917, July 9	1,400 00	
	E. G. Halliday.....	".....	1907, Feb. 21	1,400 00	
	B. M. Benson.....	".....	1909, May 25	1,400 00	
	E. Hills.....	".....	1912, July 2	1,400 00	
	C. O'Connor.....	Engrossing Clerk.....	1907, Oct. 16	1,200 00	

Surveys Branch.....	L. V. Rorke.....	Director of Surveys.....	1909, May	1	4,800 00
	J. Hutcheon.....	Inspector of Surveys.....	1913, April	1	3,600 00
	H. C. Smith.....	Cartographer.....	1919, Dec.	12	2,500 00
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct.	16	2,600 00
	J. Work.....	Principal Clerk.....	1909, May	18	2,300 00
	E. M. Jarvis.....	Senior Clerk.....	1897, April	25	2,000 00
	H. Treeby.....	Map Draughtsman.....	1896, June	25	2,000 00
	F. E. Blanchet.....	".....	1906, May	15	2,000 00
	A. Leaman.....	".....	1907, Sept.	12	2,000 00
	S. R. Smith.....	Junior Clerk.....	1923, Sept.	7	850 00
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July	21	1,400 00
Forestry Branch.....	E. J. Zavitz.....	Provincial Forester.....	1912, Nov.	7	4,800 00
	C. R. Mills.....	Forester.....	1921, Mar.	28	3,450 00
	F. S. Newman.....	".....	1913, Oct.	1	2,450 00
	J. Houser.....	Head Clerk.....	1905, July	17	2,850 00
	W. F. Trivett.....	Principal Clerk.....	1900, June	25	2,300 00
	H. D. Gillard.....	".....	1897, Dec.	6	2,300 00
	N. L. Rogers.....	Senior Account Clerk.....	1911, Aug.	1	2,000 00
	A. H. O'Neil.....	Senior Clerk.....	1906, July	19	1,900 00
	S. D. Meeking.....	".....	1910, Feb.	8	1,850 00
	E. H. Telfer.....	".....	1915, Sept.	27	1,800 00
	G. W. Harris.....	".....	1906, Sept.	1	1,700 00
	E. H. Squire.....	Clerk.....	1916, Jan.	4	1,500 00
	E. F. Quigley.....	Junior Clerk.....	1921, May	4	1,025 00
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May	1	1,400 00
	J. Bald.....	".....	1913, June	12	1,400 00
Accounts Branch.....	E. C. Armer.....	".....	1909, Aug.	6	1,300 00
	M. H. O'Brien.....	Clerk Stenographer.....	1922, May	22	1,050 00
	A. S. McKyes.....	".....	1921, May	9	1,100 00
	J. Ferguson.....	".....	1919, Aug.	4	1,050 00
	H. M. Lount.....	Accountant.....	1903, Oct.	1	3,000 00
	C. J. Clarke.....	Principal Clerk.....	1905, Aug.	9	2,100 00
	W. A. Burritt.....	Senior Clerk.....	1907, Sept.	24	1,900 00
	R. Gordon.....	Clerk.....	1912, July	30	1,600 00
	C. C. Johnson.....	".....	1921, May	16	1,500 00
	C. Bowland.....	Senior Clerk Typist.....	1908, July	9	1,400 00
	M. A. Whyte.....	Clerk Stenographer.....	1921, June	1	1,100 00

Appendix No. 1—Concluded

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1925.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Files Branch.....	S. K. Burdin.....	Head Clerk.....	1916, April 6	\$2,500 00	Transferred from Lands Branch, July 7, 1925.
	C. Dies.....	Clerk.....	1905, June 14	1,700 00	
	F. Samuels.....	Senior Clerk.....	1903, Dec. 5	1,700 00	
	J. T. Lee.....	Clerk.....	1917, June 25	1,700 00	
	S. Mulholland.....	".....	1918, May 6	1,200 00	
	W. C. St. John.....	".....	1906, July 9	1,500 00	
	N. B. Mathewson.....	".....	1915, May 7	1,500 00	
	H. Brophy.....	Senior Clerk Messenger.....	1898, Oct. 1	1,300 00	
	C. H. Fullerton.....	Superintendent.....	1915, Oct. 15	4,600 00	
	C. H. Meader.....	Road Engineer.....	1912, June 14	3,000 00	
Colonization Roads Branch.....	M. P. Doherty.....	Principal Clerk.....	1898, May 1	2,100 00	Appointed Deputy Minister of Northern Development Branch, June 1, 1925.
	A. Gancey.....	Account Clerk.....	1915, July 19	1,450 00	
	W. T. Axford.....	Junior Clerk.....	1910, July 11	1,100 00	
	J. Moore.....	Clerk Stenographer.....	1918, Dec. 9	1,050 00	

Appendix No. 2

List of Agents for the year ending October 31st, 1925.

Name.	Post Office Address.	District or County.	Date of Appointment.	Salary per annum.	Remarks.
Alexander, Jas. A.	Fort Frances.	Fort Frances District.	1924, Nov. 1	.....
Arthurs, E.	Espanola Mills.	Part District of Sudbury.	1915, June 1	\$500 00	For salary see Crown Timber Agents.
Baker, R. H.	Minden.	Part Victoria.	1907, Oct. 1	350 00	
Blank, Frank.	Wilno.	Part of Renfrew.	1921, Apr. 1	500 00	
Both, C.	Denbigh.	Part of Frontenac and Addington.	1905, Oct. 20	200 00	
Bolger, J. W.	New Liskeard.	Part District of Temiskaming.	1913, Aug. 1	1,200 00	Removed from Office Nov. 15, 1924.
Bresnahan, John.	Hearst.	" Cochrane.	1924, April 28	3 00	per day.
Brown, John.	Markstay.	" Nipissing and Sudbury.	1916, July 3	600 00	
Cameron, Wm.	Stratton Station.	" Rainy River.	1911, May 8	500 00	
Campbell, Miss I. M.	Parry Sound.	" Parry Sound.	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie.	" Algoma.	1920, Nov. 18	300 00	
Dempsey, S. J.	Cochrane.	" Cochrane.	1911, Feb. 1	1,100 00	Also Homestead Inspector.
Douglas, W. J.	Maynooth.	Part Hastings.	1912, June 1	500 00	
Ellis, H. J.	Powassan.	Part District of Parry Sound.	1909, May 20	500 00	
Fink, J. Arthur.	Mattawa.	" Nipissing.	1925, May 18	500 00	
Freeborn, J. S.	Magnetawan.	" Parry Sound.	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden.	" Kenora.	1914, Dec. 5	1,200 00	
Grigg, Albert.	Bruce Mines.	" Algoma.	1925, Sept. 1	900 00	Also Homestead Inspector.
Hales, W.	Apsey.	Part County of Peterborough.	1911, July 17	250 00	
Holland, C. J.	Fort Frances.	Part Township of Alberta & District of Rainy River.	1892, Oct. 12	300 00	Resigned May 30, 1925.
Holland, H. E.	Kenora.	Part District of Kenora.	1921, Jan. 1	600 00	Also Mining Recorder.
McFayden, A.	Emo.	" Rainy River.	1905, Sept. 8	600 00	
MacLennan, J. K.	Sudbury.	" Sudbury.	1905, July 3	700 00	
Marchildon, J. P.	Sturgeon Falls.	" Nipissing.	1923, Apr. 27	1 60	per day.
Mills, J. E.	Matheson.	" Cochrane.	1921, Aug. 1	1,200 00	
McCrea, J. R.	New Liskeard.	" Temiskaming.	1924, Nov. 15	1,200 00	
Parsons, W. J.	North Bay.	" Nipissing.	1908, Apr. 8	1,200 00	
Sheppard, H. E.	Kapuskasing.	" Cochrane.	1909, Feb. 13	.....	For salary see Homestead Inspectors.
Small, R.	Mattawa.	" Nipissing.	1910, July 1	500 00	Died Feb. 17, 1925.
Teasdale, R. A.	Massey.	" Sudbury.	1917, July 1	600 00	
Thaw, D.	Emsdale.	" Parry Sound.	1919, July 2	500 00	
Tranor, W. J.	Hilton Beach.	Part St. Joseph Island.	1925, Sept. 12	300 00	

Appendix No. 2—Concluded
List of Agents for the year ending October 31st, 1925.

Name.	Post Office Address.	District or County.	Date of Appointment.	Salary per annum.	Remarks.
Watt, F.	Pembroke.	Part Renfrew.	1923, Sept. 11	\$300 00	
Whybourne, W. E.	Hilton Beach.	Part St. Joseph Island.	1905, Apr. 7	300 00	Resigned May 29, 1925.
Wilson, A. N.	Kinnmount.	Part District of Peterborough.	1915, May 6	175 00	
Wilson, S. H.	Port Arthur.	" " Thunder Bay.	1921, Nov. 26	1,200 00	
Woollings, Jos.	Englehart.	" " Temiskaming.	1908, July 13	800 00	
McArthur, T. A.	North Bay.	Inspector of Crown Lands Offices.	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
<i>Homestead Inspectors.</i>					
Barr, J. C.	Fort Frances.	District of Rainy River.	1906, Dec. 1	1,600 00	
Bastien, J. A.	Chelmsford.	W. part of Sudbury District.	1913, May 12	1,300 00	
Cragg, W. V.	New Liskeard.	S. part of Temiskaming District.	1913, Apr. 1	1,700 00	
Dean, Thos.	Sault Ste. Marie.	Algoma District.	1908, Aug. 3	900 00	Also Crown Lands Agent.
Gerhart, Wm. G.	Bruce Mines.	Muskoka District.	1924, Oct. 14	1,100 00	
Grigg, Albert.		Part District of Algoma.	1925, Sept. 1	.....	For salary see Crown Lands Agent.
Hughes, T.	Murillo.	Thunder Bay District.	1908, July 29	1,400 00	
Jervis, H. F.	Callander.	District of Parry Sound.	1920, June 10	1,600 00	
Owens, H. B.	Cache Bay.	E. part Sudbury and W. part Algoma districts.	1918, July 1	1,100 00	
Sheppard, H. E.	Kapuskasing.	Part District of Cochrane.	1909, Feb. 13	1,800 00	Also Crown Lands Agent.
Smith, D.	Cochrane.	N. part Temiskaming District.	1912, Apr. 24	1,900 00	
Van Horn, L. E.	Monteith.	Part Temiskaming and Algoma Districts.	1920, Jan. 27	1,700 00	
Watson, T. P.	Englehart.	Centre part of Temiskaming District.	1905, May 10	1,500 00	
Wigle, R. G.	Dryden.	Kenora District.	1914, June 1	1,600 00	
<i>Timber Agents.</i>					
Alexander, Jas. A.	Fort Frances.	Fort Frances District.	1924, Nov. 1	2,500 00	Also Crown Lands Agent.
Fletcher, N. B.	Parry Sound.	Part Parry Sound and Muskoka Districts.	1923, Dec. 1	1,700 00	
Huckson, A. H.	Sault Ste. Marie.	Part District of Algoma.	1914, Apr. 1	2,400 00	
Larose, S. C.	Ottawa.	Part Ottawa District.	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard.	Part Temiskaming District.	1907, Jan. 1	2,400 00	
McDougall, J. T.	North Bay.	Nipissing and part Sudbury Districts.	1908, July 1	2,500 00	
Milway, Jos. H.	Port Arthur.	Part Thunder Bay District.	1924, Nov. 1	2,400 00	
Smith, J. D. C.	Kenora.	Kenora District.	1924, Nov. 1	2,400 00	
Spence, D. J.	Cochrane.	Part Temiskaming and Algoma Districts.	1920, Dec. 1	2,400 00	
Stevenson, A.	Peterborough.	Belleville District.	1905, Oct. 4	1,900 00	
Whelan, Patrick J.	Renfrew.	Renfrew Agency.	1924, Nov. 1	2,400 00	
Wood, W. G. A.	South Porcupine.	Porcupine District.	1917, Mar. 1	1,600 00	Resigned April 30, 1925.
Hart, J. I.	Orillia.	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration.			
Hawkins, S. J.	Toronto.	Relieving Crown Timber Agent.	1923, Sept. 4 1905, Aug. 16	3,500 00 2,100 00	

Appendix No. 3.

Statement of Lands Sold and Leased, Amount of Sales and Leases, and Amount of Collections
for the year ending October 31st, 1925.

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
<i>Lands Sold:</i>		\$ c.	\$ c.
Agricultural and Townsites, etc.....	117,488.39	115,507 14	100,042 73
Clergy Lands.....	50.00	50 00	485 54
Common School Lands.....			1,608 26
Grammar School Lands.....			221 76
University Lands.....	1,798.00	899 00	1,517 05
<i>Lands Leased:</i>			
Crown.....	8,094.18	5,296 04	110,136 32
Temagami.....	44.97	490 00	2,292 80
	127,475.54	122,242 18	216,304 46

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1925.

Service	\$	c.	\$	c.	\$	c.
LAND COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	81,205	62				
Townsites.....	18,837	11				
			100,042	73		
Clergy Lands.....	485	54				
Common School Lands.....	1,608	26				
Grammar School Lands.....	221	76				
University Lands.....	1,517	05				
			3,832	61		
					103,875	34
<i>Rent:</i>						
Crown Leases.....			101,771	24		
Algonquin Provincial Park.....			3,055	40		
Rondeau Provincial Park.....			5,065	00		
Bruce Beach.....			244	68		
Temagami Leases.....			2,292	80		
Sand and Gravel.....			7,348	95		
					119,778	07
WOODS AND FORESTS						
Bonus.....			1,565,896	83		
Timber Dues.....			2,669,587	84		
Ground Rent.....			103,247	58		
Fire Protection.....			266,488	13		
Transfer Fees.....			5,380	00		
Mill License Fees.....			322	15		
					4,610,922	53
<i>Parks:</i>						
Algonquin Provincial Park.....			6,931	15		
Rondeau Provincial Park.....			1,624	80		
Quetico Provincial Park.....			3,790	23		
					12,346	18
Casual Fees.....			1,877	35		
Forest Reserves, Guides' Fees.....			219	00		
					2,096	35
REFUNDS						
Agents' Salaries and Disbursements.....			5	60		
Contingencies.....			11	02		
Clearing Townsites and Removing Fire Hazards.....			44	50		
Display at Toronto Exhibition.....			25	48		
Forest Ranging.....			161,401	76		
Fire Ranging.....			1,739	40		
Reforestation.....			1,606	62		
					164,834	38
					\$5,013,852	85

Appendix No. 5

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1925, which are considered as Special Funds.

Service	\$	c.	\$	c.
<i>Clergy Lands</i>				
Principal.....	274	25		
Interest.....	211	29		
			485	54
<i>Common School Lands</i>				
Principal.....	876	40		
Interest.....	731	86		
			1,608	26
<i>Grammar School Lands</i>				
Principal.....	138	60		
Interest.....	83	16		
			221	76
<i>University Lands</i>				
Principal.....	1,111	31		
Interest.....	354	40		
			1,465	71
			\$3,781	27

Appendix No. 6

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1925.

Service	\$	c.	\$	c.	\$	c.
AGENTS' SALARIES AND DISBURSEMENTS.....					102,075	23
ALGONQUIN PROVINCIAL PARK.....					33,518	26
ALLOWANCE SCHOOL SECTION, SOUTH WALSINGHAM...					300	00
ALLOWANCE SCHOOL SECTION, TOWNSHIP OF VESPRA.....					250	00
ALLOWANCE TOWNSHIP SIDNEY RE SURVEY.....					250	00
ALLOWANCE TO MRS. J. P. SECORD RE CANCELLATION OF LEASES.....					1,500	00
ALLOWANCE TO W. H. MANNING RE CANCELLATION OF LEASES.....					1,500	00
BOARD OF SURVEYORS.....					200	00
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....					25,769	47
COLONIZATION ROADS.....					474,409	34
COMMISSIONS RE SUNDRY INVESTIGATIONS.....					250	00
CONTINGENCIES, COLONIZATION ROADS.....					2,008	77
CONTINGENCIES, ADVERTISING, ETC.....					60,818	15
CULLERS' ACT.....					50	75
DISPLAY AT TORONTO EXHIBITION.....					906	01
FIRE RANGING.....					1,187,506	18
FOREST RANGING.....					443,161	08
FOREST RESERVES.....					4,841	14
GRANT TO CANADIAN FORESTRY ASSOCIATION.....					3,000	00
INSURANCE.....					5,026	03
LEGAL FEES AND EXPENSES.....					1,250	00
MOVING EXPENSES OF OFFICIALS.....					178	38
OTTAWA AGENCY.....					2,652	54
PURCHASE AND MAINTENANCE OF AUTOMOBILES.....					178	13
QUETICO PROVINCIAL PARK.....					10,808	62
REFORESTATION.....					200,389	75
REFUNDS—MISCELLANEOUS.....					41,691	40
RONDEAU PROVINCIAL PARK.....					11,211	29
<i>Carried forward</i>					2,615,700	52

Appendix No. 6—Concluded

Service	\$	c.	\$	c.	\$	c.
<i>Brought forward</i>					2,615,700	52
SURVEYS.....					72,527	39
UNFORESEEN AND UNPROVIDED.....					835	00
VETERANS' COMMUTATION.....					250	00
WORKMENS' COMPENSATION.....					7,005	61
GRATUITIES:						
Kenneth McBride and Victor Gilbert.....					2,000	00
STATUTORY:						
F. H. Keefer.....					1,827	64
					2,700,146	16

Appendix

Statement of Timber and Amounts accrued from Timber Dues, Ground Rent,

QUANTITY AND

Province of Ontario	Area covered by timber licenses	Saw Logs.					
		Red and White Pine		Jack Pine		Other	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet
	17,728½	6,157,600	259,462,623	4,246,667	70,401,499	2,390,651	78,424,552

Statement

Province of Ontario	Shingle Bolts	Cedar Posts	Tele- graph Poles	Pulp- wood	Railway Ties	Pine Waney & Cubic		Lagging	
	Cords	Pieces	Pieces	Cords	Pieces	Pieces	Cubit ft.	Pieces	Timber Dues
	46	169,572	36,002	433,146	2,702,343	4,752	236,089	3,512	1,703,224 05

No. 7

Fire Protection and Bonus, etc., during the year ending 31st October, 1925.

DESCRIPTION OF TIMBER

Boom and Dimension Timber						Piling	Cordwood		Tan bark
Red and White Pine		Jack Pine		Other			Hard	Soft	
Pieces	Feet	Pieces	Feet	Pieces	Feet		Cords	Cords	
41,891	6,514,574	27,438	1,792,137	49,120	4,146,896	10,625	21,041	43,309	883

of Timber—Concluded

Amounts Accrued.

Bonus	Trespass	Deposits Timber Sales	Ground Rent	Interest	Transfer Fees	Fire Tax	Mill License Fees	Total
\$ 1,630,697 c. 23	\$ 59,396 c. 77	\$ 543,825 c. 00	\$ 102,389 c. 93	\$ 108,547 c. 91	\$ 5,380 c. 00	\$ 266,488 c. 13	\$ 322 c. 15	\$ 4,420,271,17 c.

Appendix No. 8

FORESTRY BRANCH

Statement of Revenue collected during the year ending October 31st, 1925

Timber Dues.....	\$2,669,587 84
Bonus.....	1,565,896 83
Fire Protection.....	266,488 13
Ground Rent.....	103,247 58
Transfer Fees.....	5,380 00
Mill License Fees.....	322 15
	<u>\$4,610,922 53</u>

Timber dues.....	\$2,018,072 58	
Interest, timber dues.....	107,690 26	
Timber sale deposits.....	543,825 00	\$2,669,587 84
Bonus.....		1,565,896 83
Fire protection.....		266,488 13
Ground rent.....	\$102,389 93	
Interest, ground rent.....	857 65	103,247 58
Transfer fees.....		5,380 00
Mill License Fees.....		322, 15
		<u>\$4,610,922 53</u>

Appendix No. 9

ACREAGE UNDER LICENSE

The area covered by Timber Licenses where the holder pays Regulation Ground Rent and Fire Charges, at the end of the fiscal year 1925, was 17,728½ square miles.

The number of Crown Timber Licenses issued for the license season of 1924-25 was 930.

PULP CONCESSIONS

The area covered by pulp concessions exclusively amounts to 39,437 square miles, on which fire protection charges at the rate of \$3.20 per square mile are payable.

Appendix No. 10

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Free Grant Townships during the year ending 31st October, 1925.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Baxter.....	Muskoka.....	W. B. Gerhart, Bracebridge..			1	27 $\frac{3}{10}$	2	176	1	92 $\frac{25}{100}$
Brunel.....	"	"	1	74			1	74	1	99
Cardwell.....	"	"					2	320		
Chaffey.....	"	"							1	101
Draper.....	"	"	1	98			1	98	2	285
Franklin.....	"	"	1	100			1	100	1	82
Freeman.....	"	"					4	506	3	693
Macaulay.....	"	"								
Medora.....	"	"	1	100			3	403	1	100
Morrison.....	"	"	2	300			4	500	2	286
Muskoka.....	"	"					2	161	1	100
McLean.....	"	"					2	275	2	334
Oakley.....	"	"			1	103	10	1,409	6	719 $\frac{1}{2}$
Ridout.....	"	"	1	100			2	288	1	80
Ryde.....	"	"	1	102			5	397	3	630
Sherbourne.....	Haliburton...	"					1	199		
Sinclair.....	Muskoka.....	"			1	28	1	200	3	494
Stephenson.....	"	"					1	100	1	100
Wood.....	"	"							1	146
Blair.....	Parry Sound..	Miss I. M. Camp- bell, Parry Sound							1	180
Burpee.....	"	"	2	203			2	203		
Carling.....	"	"	3	400			4	598		
Christie.....	"	"	3	298	1	32 $\frac{1}{2}$	2	198	2	334 $\frac{1}{2}$
Conger.....	"	"	1	165	1	5	2	155 $\frac{1}{2}$	3	535
Cowper.....	"	"					2	248		
Foley.....	"	"							1	97
Hagerman.....	"	"					1	39		
Henvey.....	"	"	2	215			1	100	2	315
Humphrey.....	"	"					1	100	1	187
McConkey.....	"	"	2	200	2	104 $\frac{1}{2}$	3	300	2	300
McDougall.....	"	"	1	101	1	$\frac{1}{2}$	2	177	1	101
McKellar.....	"	"	1	100	4	3	2	154		
McKenzie.....	"	"					1	200		
Monteith.....	"	"	1	99	1	51	2	198	1	247 $\frac{85}{100}$
Wilson.....	"	"			1	5			5	645
Chapman.....	"	Dr. J. S. Freeborn, Magnetawan...	1	101			3	273	1	100
Croft.....	"	"	3	496	1	105	3	479	1	200
Gurd.....	"	"	1	100			2	200		
Lount.....	"	"	4	443			1	183	4	585
Machar.....	"	"					1	99	5	611
Mills.....	"	"			1	100	3	394	3	485
Pringle.....	"	"			2	68	1	100	8	1,343
Ryerson.....	"	"							2	200
Spence.....	"	"			3	47	1	119	1	100
Strong.....	"	"					1	183	2	300
Armour.....	Parry Sound..	David Thaw, Emsdale...	1	100					1	100
Bethune.....	"	"	2	202	1	6	5	629	1	199
Joly.....	"	"	4	400			2	298	3	400
McMurrich.....	"	"							2	303
Proudfoot.....	"	"					3	402		

Appendix No. 10—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Hardy.....	Parry Sound..	H. J. Ellis,	.....	.....	2	5 $\frac{1}{2}$	.....	.....	2	300
Himsworth.....	"	Powassan..	1	100	3	102 $\frac{7}{10}$	.....	.....	3	410
Laurier.....	"	"	.....	.....	.....	.....	.....	.....	2	256 $\frac{3}{4}$
Nipissing.....	"	"	1	100	3	9 $\frac{9}{10}$	1	100	6	591
Patterson.....	"	"	.....	.....	1	4	1	93	.....	.....
Bonfield.....	Nipissing.....	W. J. Parsons,	1	30	1	100	.....	.....	2	150
Boulter.....	"	North Bay...	2	304	1	4	.....	.....	1	50 $\frac{1}{2}$
Chisholm.....	"	"	2	99	2	23	2	177	3	301
Ferris.....	"	"	1	100	1	28	2	200	3	212 $\frac{1}{4}$
Anson.....	Haliburton...	R. H. Baker,	.....	.....	.....	.....	1	100	.....	.....
Glamorgan.....	"	Minden...	.....	.....	1	1	3	300	1	100
Hindon.....	"	"	3	291	1	2	.....	.....	1	102
Lutterworth.....	"	"	1	98	.....	.....	2	291	.....	.....
Minden.....	"	"	1	95	1	100	1	95	3	350
Snowdon.....	"	"	.....	.....	.....	.....	.....	.....	1	100
Stanhope.....	"	"	.....	.....	2	6 $\frac{9}{10}$	1	100	.....	.....
Austruther.....	Peterborough..	Wm. Hales,	1	137	1	54	.....	.....	2	354
Burleigh, N.D.	"	Apsley.....	.....	.....	.....	.....	.....	.....	4	294
Chandos.....	"	"	.....	.....	.....	.....	2	246	.....	.....
Methuen.....	"	"	.....	.....	1	100	.....	.....	.....	.....
Cardiff.....	Haliburton...	A. N. Wilson,	.....	.....	1	2	.....	.....	2	200
Cavendish.....	"	Kinmount...	.....	.....	1	5	1	100	1	121
Galway.....	"	"	.....	.....	.....	.....	1	101	2	307
Monmouth.....	"	"	1	92	.....	.....	5	685	4	507
Bangor.....	Hastings.....	W. J. Douglas,	1	110	1	10	1	110	.....	.....
Carlow.....	"	Maynooth...	.....	.....	.....	.....	.....	.....	1	100
Dungannon.....	"	"	2	74	3	30	1	100	5	703
Faraday.....	"	"	3	346	.....	.....	1	102	2	167
Herschel.....	"	"	1	200	1	31	.....	.....	7	855 $\frac{1}{2}$
Limerick.....	"	"	1	184	.....	.....	2	184	2	159
Mayo.....	"	"	2	207	.....	.....	1	129	.....	.....
Monteagle.....	"	"	1	100	.....	.....	1	100	5	485
McClure.....	"	"	4	396	.....	.....	3	632	2	197
Wicklow.....	"	"	.....	.....	.....	.....	.....	.....	1	101
Wollaston.....	"	"	.....	.....	.....	.....	.....	.....	1	100
Brudenell.....	Renfrew.....	Frank Blank,	2	200	2	131	3	298	3	400
Hagarty.....	"	Wilno...	2	208	.....	.....	3	304	3	333
Jones.....	"	"	7	541 $\frac{1}{2}$	3	12	3	207	.....	.....
Lyell.....	"	"	3	258	4	204	2	165	4	794
Lyndoch.....	"	"	1	100	1	20	.....	.....	2	320
Matachewan...	"	"	1	100	.....	.....	.....	.....	.....	.....
Radcliffe.....	"	"	7	1,055	5	34	3	490	6	616
Raglan.....	"	"	5	416 $\frac{1}{2}$	1	19	3	250	6	806 $\frac{1}{2}$
Richards.....	"	"	4	343	1	100	2	144	3	575
Sebastopol.....	"	"	1	193	.....	.....	3	293	1	200
Sherwood.....	"	"	.....	.....	1	100	.....	.....	3	419
Algona, N.....	Renfrew.....	Finlay Watt,	.....	.....	2	185	.....	.....	2	127
Alice.....	"	Pembroke..	.....	.....	.....	.....	1	100	1	100
Buchanan.....	"	"	1	140	.....	.....	.....	.....	2	190
Fraser.....	"	"	2	205	.....	.....	.....	.....	.....	.....
Head.....	"	"	4	404	.....	.....	1	100	1	116
Maria.....	"	"	1	117	.....	.....	.....	.....	1	200
Petawawa.....	"	"	2	201	.....	.....	2	301	2	158

Appendix No. 10—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Ralph.....	Renfrew.....	Finley Watt,	1	100	..	..	1	200	1	100
Wilberforce.....	"	Pembroke..	..	..	1	100	..	..	2	200
Wylie Pt.....	"	"	2	238	..	..	..	..	1	200
Calvin.....	Nipissing.....	J. A. Fink,	2	200	1	81½	2	200	4	583
Cameron Pt.....	"	Mattawa..	3	248	..	..	7	1104	..	..
Lauder.....	"	"	3	306	..	..	3	312	..	..
Mattawan.....	"	"	4	382	..	..	2	190	4	330
Papineau.....	"	"	3	300	..	..	2	200	1	100
Park.....	Algoma.....	Thos. Dean, Sault	..	..	..	..	..	..	1	160
Galbraith.....	"	Ste. Marie...	..	..	..	..	..	..	2	211
Lefroy.....	"	Albert Grigg,	1	63	..	..	1	164	1	160
..	..	Bruce Mines...	..	..	..	..	..	..	..	..
Hilton.....	Algoma.....	W. J. Trainor,	1	100	1	5	2	200	..	..
Jocelyn.....	"	Hilton Beach..	5	510	..	..	4	426	2	181
Baldwin.....	Sudbury.....	Edward Arthurs,	3	474½	..	..	2	334½	1	159½
Merritt.....	"	Espanola...	..	..	..	..	1	159½	1	100
Blake.....	Thunder Bay..	S. H. Wilson,	8	1,116½	1	80	..	..	2	320
Comnee.....	"	Pt. Arthur..	2	285½	1	79½	7	876½	2	480½
Crooks.....	"	"	3	228	..	..	2	336	..	..
Dawson Road..	"	"	10	755	6	85%	4	337	..	..
Dorion.....	"	"	10	1,465½	..	..	..	734½	5	668½ ¹⁹ / ₁₀₀
Gorham.....	"	"	18	2,448¾	13	739½	..	697½	..	..
Lybster.....	"	"	1	160	..	..	1	160	1	160
Marks.....	"	"	7	1,077	1	4	8	1,173	2	323½
McGregor.....	"	"	9	1,110	2	242	11	1,548	2	321
McIntyre.....	"	"	..	..	..	..	..	..	1	28
Oliver.....	"	"	..	..	..	..	1	160	1	162½
Paipoonge, N.R.	"	"	..	..	..	..	..	..	..	..
" S.R. ....	"	"	..	..	..	..	..	..	..	..
Pardee.....	"	"	1	160	..	..	..	..	..	..
Pearson.....	"	"	3	504	1	½	2	344	..	..
Scoble.....	"	"	10	1,485	1	160	10	1,334	5	734½
Sterling.....	"	"	7	1,109	2	158	8	1,189½	11	1,638
Strange.....	"	"	3	476½	..	..	3	476½	..	..
Ware.....	"	"	10	1,446¾	11	406 ⁶⁸ / ₁₀₀	7	938	3	425½
Atwood.....	Rainy River..	Wm. Cameron,	..	..	..	..	..	..	..	..
Blue.....	"	Stratton...	3	402½	1	5	3	402½	..	..
Curran.....	"	"	1	160	..	..	2	320	..	..
Dewart.....	"	"	8	1,323	..	..	7	913¾	..	..
Dilke.....	"	"	..	..	1	2	..	..	2	242
Morley.....	"	"	1	40	1	4	..	..	2	162½
Morson.....	"	"	17	1,632½	2	100¾ ³ / ₄	18	2,456	..	..
McCrosson.....	"	"	4	425½	1	1½	3	422¾ ³ / ₄	2	319
Nelles.....	"	"	5	679	4	43	5	726	2	321
Pattulo.....	"	"	2	121½	..	..	1	82	1	81½
Pratt.....	"	"	4	642½	..	..	6	1,004	1	81
Roseberry.....	"	"	..	..	..	..	..	..	..	..
Shenston.....	"	"	1	100	..	..	1	100	..	..
Sifton.....	"	"	3	255½	1	80	4	400¾ ³ / ₄	2	416
Spohn.....	"	"	21	2,553¾	4	324¾ ³ / ₄	9	1,274¾ ³ / ₄	5	766
Sutherland.....	"	"	8	1,120½	..	..	9	1,285½	4	568½
Tait.....	"	"	3	315	..	..	3	568	2	162
Toveil.....	"	"	6	749¾	3	145	5	751¾ ³ / ₄	..	..
Worthington...	"	"	..	..	..	..	..	..	..	..

Appendix 10—Continued

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Aylsworth.....	Rainy River.	Alex. McFayden,	1	146			1	73		
Barwick.....	"	Emo....	2	344 $\frac{1}{2}$			3	504 $\frac{1}{2}$		
Burriss.....	"	"	3	1,161 $\frac{1}{4}$					3	316
Carpenter.....	"	"	2	120			1	120		
Crozier.....	"	"	5	807 $\frac{1}{2}$	1	2 $\frac{1}{2}$	7	1,048 $\frac{1}{4}$	2	159 $\frac{1}{2}$
Dance.....	"	"	1	80 $\frac{1}{4}$	1	6			1	176 $\frac{1}{2}$
Devlin.....	"	"	1	130 $\frac{1}{2}$	1	1	2	291	2	241 $\frac{1}{2}$
Dobie.....	"	"	6	982 $\frac{1}{2}$			7	1,050	3	396 $\frac{1}{2}$
Fleming.....	"	"	1	168 $\frac{1}{2}$			1	168 $\frac{1}{2}$	1	142 $\frac{1}{2}$
Kingsford.....	"	"	8	1,264	2	2 $\frac{1}{2}$	4	658	2	322 $\frac{1}{2}$
Lash.....	"	"	6	1,023			13	2,004		
Mather.....	"	"					1	80		
Miscampbell....	"	"								
Potts.....	"	"								
Richardson.....	"	"								
Roddick.....	"	"								
Woodyatt.....	"	"								
Aubrey.....	Kenora.....	J. E. Gibson,	10	1,359	4	89 $\frac{1}{2}$	5	742 $\frac{1}{2}$	4	688 $\frac{1}{2}$
Britton.....	"	Dryden....	10	1,600	1	4	12	1,920 $\frac{1}{2}$		
Eton.....	"	"	2	239 $\frac{1}{4}$			2	208 $\frac{1}{2}$	5	720
Langton.....	"	"	2	320			1	160	1	147 $\frac{1}{2}$
Melgund.....	"	"	11	1,577	4	100 $\frac{1}{2}$	6	820		
Mutrie.....	"	"	2	160	2	97 $\frac{1}{2}$	2	235	2	332
Redvers.....	"	"	7	1,151 $\frac{1}{2}$	1	80	2	238 $\frac{1}{2}$	1	277
Rowell.....	"	"	22	3,038	2	83 $\frac{1}{2}$	3	480		
Rugby.....	"	"	1	160			2	320		
Sanford.....	"	"	7	953 $\frac{1}{4}$	5	417	6	703	5	267
Southworth....	"	"	11	1,254 $\frac{1}{2}$	2	38 $\frac{3}{4}$	8	1,098		
Temple.....	"	"	10	1,597 $\frac{1}{2}$	1	80	4	452 $\frac{1}{2}$	1	133
Van Horne.....	"	"	2	318					4	567
Wabigoon.....	"	"	2	315			2	310	2	350 $\frac{3}{4}$
Wainwright....	"	"	4	558			3	398	3	400
Zealand.....	"	"	14	1,989 $\frac{9}{16}$	2	22 $\frac{1}{2}$	16	2,531	5	723 $\frac{3}{4}$
Melick.....	Kenora.....	H. E. Holland,	12	1,779 $\frac{1}{2}$	2	53 $\frac{1}{2}$	14	2,210 $\frac{1}{2}$	5	738
Pellatt.....	"	Kenora....	3	343 $\frac{1}{2}$	2	126 $\frac{1}{2}$	5	532 $\frac{1}{2}$	5	536
Balfour.....	Sudbury.....	J. K. MacLennan,								
Bleazard.....	"	Sudbury....								
Broder.....	"	"							3	314 $\frac{1}{4}$
Capreol.....	"	"					1	80	1	208
Chapleau.....	"	"	1	132 $\frac{1}{2}$						
Dill.....	"	"	1	160			2	320	1	155 $\frac{1}{2}$
Garson.....	"	"								
Hammer.....	"	"					2	313 $\frac{1}{2}$	1	43
Lumsden.....	"	"								
Morgan.....	"	"								
Neelon.....	"	"							1	78 $\frac{1}{2}$
Rayside.....	"	"								
Appleby.....	Sudbury.....	John Brown,	4	646			2	322	1	162
Casimir.....	"	Markstay....	5	685 $\frac{1}{2}$			1	142	2	292 $\frac{1}{2}$
Dunnet.....	"	"	5	796 $\frac{1}{2}$			2	320	2	320
Hagar.....	"	"					1	160	3	400
Jennings.....	"	"	1	160			3	461 $\frac{1}{2}$		
Kirkpatrick....	"	"	3	498 $\frac{1}{2}$	2	15 $\frac{1}{2}$	2	326	2	323
Ratter.....	"	"								

Appendix 10—Concluded

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Caldwell.....	Nipissing....	J. P. Marchildon,	.....	.....	1	81½	8	1,283	1	80
Cosby.....	"	Stureon Falls...	3	469½	1	1	3	503½	.....	.....
Grant.....	"	"	7	1,110	2	94	6	885	4	530
Macpherson.....	"	"	1	160½	.....	.....	2	320½	3	453½
Martland.....	"	"	2	312	1	3	1	163	4	637
Springer.....	"	"	1	60	1	80	.....	.....	1	95½
Abinger.....	Lennox and Addington..	Chas. Both, Denbigh..	.....	.....	.....	.....	.....	.....	.....	.....
Canonto, S.....	Frontenac...	"	.....	.....	.....	.....	.....	.....	.....	.....
Clarendon.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Miller.....	"	"	1	100	.....	.....	1	100	1	224
Denbigh.....	Lennox and	"	3	249	.....	.....	4	448	1	202
Palmerston.....	Addington..	"	.....	.....	1	22	.....	.....	.....	.....
McClintoch...	Haliburton..	Unattached.....	.....	.....	.....	.....	.....	.....	.....	.....
Gibson.....	Muskoka.....	"	.....	.....	1	5	.....	.....	.....	.....
Shawanaga.....	Parry Sound..	"	.....	.....	.....	.....	.....	.....	.....	.....
Wallbridge.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Airy.....	Nipissing.....	"	.....	.....	.....	.....	.....	.....	4	680
Finlayson.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Murchison.....	"	"	.....	.....	.....	.....	.....	.....	1	194 ³⁹ / ₁₀₀
Sabine.....	"	"	.....	.....	1	38	1	93	1	185 ³ / ₄
Burton.....	Parry Sound..	"	.....	.....	1	2	.....	.....	.....	.....
Total.....			535	6,964 ³ / ₄	175	6,601 ¹ / ₂	494	68,019 ¹ / ₂	367	49,228 ⁸⁷ / ₁₀₀

No. of lots assigned.....221

No. of acres assigned.....29,757

Appendix No. 11

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1925.

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Blount.....	Cochrane.....	S. J. Dempsay, Cochrane...	300	3	3	366	2	277
Brower.....	"	"	1,735	11	7	1,096	8	1,119
Calder.....	"	"	4,956	34	12	1,804	4	595
Clute.....	"	"	1,905	13	6	934	6	886
Coquhoun.....	"	"	901	6				
Fox.....	"	"	1,288	8	7	1,126		
Fournier.....	"	"	1,247	8	2	313	3	469
Fauquier.....	"	"	2,300	16	7	970	5	488
Glackmeyer.....	"	"	452	6	10	1,345	10	1,387
Kennedy.....	"	"	604	4		600	2	304
Leitch.....	"	"	3,016	22	8	1,138	4	600
Lamarche.....	"	"			3	489	5	741
Machin.....	"	"	2,024	14	7	947		
Newmarket.....	"	"	1,877	13	9	1,404	2	315
Pyne.....	"	"	2,247	14	9	1,481		
Shackleton.....	"	"	1,505	11	3	320	1	135
Casgrain.....	Cochrane.....	John Bresnahan, Hearst...	2,531	18	12	1,644	3	502
Devitt.....	"	"	3,949	24	9	1,440	1	146
Eilber.....	"	"	2,475	22	6	826		
Hanlan.....	"	"	2,405	16	7	1,057	5	685
Kendall.....	"	"	1,990	15	8	1,210	5	676
Lowther.....	"	"	2,041	14	9	1,329	1	143
O'Brien.....	Cochrane.....	H. E. Sheppard, Kapuskasing..	1,461	23	8	744	15	914
Nansen.....	"	"	1,943	13	4	600		
McCrea.....	"	"	5,251	35	3	451		
Owens.....	"	"	1,785	18	16	1,575	2	119
Iddington.....	"	"	5,624	58	8	775		
Williamson.....	"	"	1,321	14	9	791		
Bayley.....	Timiskaming.....	Jos. Woollings, Englehart..						
Blain.....	"	"	156	1				
Catharine.....	"	"			1	160	14	677
Chamberlain.....	"	"	319	2			2	318
Dack.....	"	"	160	1				
Eby.....	"	"	638	4			5	142
Evanturel.....	"	"					1	154
Ingram.....	"	"	790	6	6	707	4	487
Marter.....	"	"			2	320	1	149
Marquis.....	"	"					1	158
Otto.....	"	"	330	4	4	624	5	193
Pacaud.....	"	"			5	796	3	395
Pense.....	"	"	459	3	4	491	1	160
Robillard.....	"	"					2	320
Savard.....	"	"	159	1	1	159		
Truax.....	"	"	80	1				
Benoit.....	"	J. E. Mills, Matheson..	794	5	1	163	1	160
Beatty.....	Cochrane.....	"			2	364	3	332
Bond.....	"	"	651	5	4	643		
Bowman.....	"	"	749	6	3	481		904

Appendix No. 11—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Calvert.....	Cochrane.....	J. E. Mills,	772	5	5	774	9	1,562
Carr.....	"	Matheson.....					6	923
Clergue.....	"	"	120	1	3	318	3	372
Currie.....	"	"			7	1,044	2	320
Dundonald.....	"	"	338	3			4	318
Evelyn.....	"	"	161	1	5	801		
German.....	"	"	1,641	10	3	459		
Hislop.....	"	"	320	2	1	160	5	862
Matheson.....	"	"	1,840	13	13	2,047	1	162
McCart.....	"	"	788	5	5	803	3	478
Mountjoy.....	"	"	251	3	1	115	15	1,985
Playfair.....	"	"	600	4			4	640
Stock.....	"	"	630	5	1	156	6	752
Taylor.....	"	"	308	2	1	160	8	1,232
Walker.....	"	"	277	4	3	452	5	776
Armstrong.....	Timiskaming.....	J. R. McCrea,						
		New Liskeard.....					1	160
Auld.....	"	"	319	2	1	141		
Beauchamp.....	"	"			1	162	1	160
Brethour.....	"	"			3	448	1	156
Bryce.....	"	"	150	1	1	160		
Bucke.....	"	"			1	160	2	240
Cane.....	"	"					1	153
Casey.....	"	"	40	1			3	315
Dymond.....	"	"					1	157
Firstbrook.....	"	"	161	1			2	240
Harley.....	"	"	80	1	1	160	2	320
Henwood.....	"	"	482	3	4	646	5	779
Harris.....	"	"					1	157
Hilliard.....	"	"			1	160	2	320
Kerns.....	"	"	161	1			3	475
Lundy.....	"	"			2	322		
Tudhope.....	"	"	407	3	1	163	2	202
Smyth.....	Timiskaming.....	Mark Morgan,						
		Elk Lake.....			1	160		
Lorrain.....	Timiskaming.....	Neil J. McAulay,						
		Haileybury.....			4	632	2	319
Hugel.....	Nipissing.....	John Brown,						
		Markstay.....	160	1	1	159		
Louden.....	"	"			1	158		
Loughrin.....	"	"	3,225	20				
Phelps.....	Nipissing.....	W. J. Parsons,						
		North Bay.....	3,044	19	5	800	2	322
Widdifield.....	"	"	559	4	21	3,167	4	518
Hallam.....	Sudbury.....	R. A. Teasdale,						
		Massey.....	322	2			1	79
Harrow.....	"	"	476	3			1	158
May.....	"	"			1	160	1	158
Salter.....	"	"			1	90	1	156
Shedden.....	"	"	120	1	1	160	2	280
Victoria.....	"	"	160	1			3	434
Bigwood.....	Sudbury.....	J. K. MacLennan,						
		Sudbury.....	374	4			4	375

Appendix No. 11—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chases	No. of sales cancelled	No. of acres resumed	No. of pat- ents issued	No. of acres patented
Delamere.....	Sudbury.....	J. K. MacLennan,	989	6			2	318
Dowling.....	"	Sudbury.....	315	2	1	153	1	150
Nairn.....	Sudbury.....	E. Arthurs, Espanola...	303	1				
Drayton.....	Kenora.....	H. E. Holland, Kenora...	546	5				
Jaffray.....	"	"	290	3			2	255
Bright.....	Algoma.....	Albert Grigg, Bruce Mines..	251	2	4	465	1	165
Cobden.....	"	"					2	226
Gladstone.....	"	"	143	1	4	673		
Parkinson.....	"	"					1	158
Haughton.....	"	"	277	2				
Striker.....	"	"	81	1	1	160		
Patton.....	"	"			1	160		
Thompson.....	"	"	404	3			1	162
Day.....	"	"					1	161
Johnson.....	"	"			2	429		
Rose.....	"	"					2	323
Gould.....	"	"	135	1				
Aweres.....	Algoma.....	T. Dean, Sault Ste. Marie.	339	2	2	320	1	131
Tarbutt, Add'l..	"	"					1	164
Tarentorus.....	"	"	160	2				
Vankoughnet.....	"	"			2	266	1	121
Forbes.....	Thunder Bay.....	S. H. Wilson, Port Arthur...	4,963	32	7	1,033	2	305
Fowler.....	"	"	818	5	2	316		
Goldie.....	"	"	4,044	25				
Jacques.....	"	"	896	6				
Lyon.....	"	"	932	7	2	240	4	607
McTavish.....	"	"	640	4	1	160		
Sibley.....	"	"	1,093	7	3	488		
Upsala.....	"	"	2,266	15	5	736		
Badgerow.....	Nipissing.....	Unattached.....	312	2	2	320		
Bagot.....	Renfrew.....	"	100	2			2	100
Barber.....	Timiskaming.....	"					1	162
Bedford.....	Frontenac.....	"			5	705	1	6
Blithfield.....	Renfrew.....	"					1	100
Bruce.....	Bruce.....	"					2	198
Cleland.....	Sudbury.....	"	143	1			2	272
Cook.....	Cochrane.....	"					1	160
Creighton.....	Sudbury.....	"					1	164
Crerar.....	Nipissing.....	"	160	1				
Dalton.....	Victoria.....	"	200	2				
Darling.....	Lanark.....	"	192	2			2	192
Denison.....	Sudbury.....	"	162	1				
Derby.....	Grey.....	"					1	100
Drury.....	Sudbury.....	"	483	3	2	160		
Dryden.....	"	"	628	4			1	159
Dummer.....	Peterborough.....	"	160	1			1	100
Ernesttown.....	Lennox and Addington.....	"	50	1			1	50

Appendix No. 11—Continued

Township.	District or County.	Agent.	No. of acres sold.	No. of pur- chasers.	No. of sales cancelled	No. of acres resumed	No. of patents issued.	No. of acres patented.
Falconbridge....	Sudbury.....	Unattached.....	180	1			1	180
Field.....	Nipissing.....	"	560	4	1	165	1	159
Fairbank.....	Sudbury.....	"	161	1				
Foster.....	Sudbury.....	"	129	1				
Georgina.....	York.....	"					1	100
Gibbons.....	Nipissing.....	"	71	1			1	71
Glenelg.....	Grey.....	"					2	200
Gough.....	Sudbury.....	"	104	1				
Graham.....	"	"					2	129
Hallowell.....	Prince Edward.....	"					1	66
Harvey.....	Peterborough.....	"	171	2				
Hinchinbrooke.....	Frontenac.....	"	100	1				
Holland.....	Grey.....	"					1	156
Horton.....	Renfrew.....	"					1	100
Kaladar.....	Lennox and Addington.....	"					1	180
Kennebec.....	Frontenac.....	"	382	4			4	645
Lake.....	Hastings.....	"	123	1				
Lavant.....	Lanark.....	"	200	1				
Lorne.....	Sudbury.....	"	717	5			5	598
Louise.....	"	"	247	2			1	100
Mara.....	Ontario.....	"					1	110
Marmora.....	Hastings.....	"	100	1			1	50
McKim.....	Sudbury.....	"					1	156
Minto.....	Wellington.....	"					1	50
Murray.....	Northumberland.....	"	100	1				
Nairn.....	Sudbury.....	"	303	2			3	422
Olden.....	Frontenac.....	"	88	1			1	88
Osnabruck.....	Stormont.....	"	200	3			3	200
Oso.....	Frontenac.....	"	100	1	3	214		
Oxford.....	Grenville.....	"					1	50
Proton.....	Grey.....	"					1	99
Rama.....	Ontario.....	"			1	100		
Roxborough.....	Stormont.....	"	200	1			1	97
Shakespeare.....	Sudbury.....	"	322	2				
Sherbrooke, S.....	Lanark.....	"			2	140		
Somerville.....	Victoria.....	"					1	99
Tay.....	Simcoe.....	"					1	196
Tudor.....	Hastings.....	"	201	2	4	398	2	86
Verulam.....	Victoria.....	"	60	1			1	60
Waters.....	Sudbury.....	"					2	200
Westmeath.....	Renfrew.....	"					1	56
Total.....			109,990	810	385	54,961	329	41,777

Number of lots assigned..... 505 Number of acres assigned.. 69,752
 Farm locations sold in unsurveyed territory 741%

Appendix No. 11—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Matheson.....	25	18
“.....	Cochrane.....	24	28
“.....	Hearst.....	8	4
“.....	Kapuskasing.....	7	4
Algoma.....	Thessalon.....	0	1
Timiskaming.....	Englehart.....	7	1
“.....	New Liskeard.....	1	1
County of Victoria.....	Unattached.....	0	1
Nipissing.....	Markstay.....	3	2
“.....	North Bay.....	9	7
Thunder Bay.....	Port Arthur.....	9	4
Kenora.....	Kenora.....	0	1
		93	72

Statement showing the number of purchasers, acres sold and of patents issued in Townsites, during the year ending 31st October, 1925.

Townsite.	District or County.	Agent.	No. of acres sold	No. of pur- chasers	No. of patents issued	No. of acres patented
Alexandra.....	Cochrane.....	Unattached.....	3.47	13	6	2.73
Armstrong.....	Thunder Bay.....	“.....	.20	1		
Bartleman.....	Timiskaming.....	C. A. Duval.....	.33	4	3	.18
Bobcaygeon.....	Victoria.....	Unattached.....	.47	1	2	.97
Capreol.....	Sudbury.....	“.....	1.12	3	2	.22
Colchester.....	Essex.....	“.....	2.34	7	5	1.91
Foleyet.....	Sudbury.....	“.....	.23	2		
Gogoma.....	Sudbury.....	“.....	.91	8	3	.33
Hearst.....	Cochrane.....	“.....	26.52	7	2	2.35
Hilton.....	Algoma.....	“.....	.50	1	2	1.00
Hornpayne.....	Algoma.....	“.....	1.55	9	4	.88
Kapuskasing.....	Cochrane.....	H. E. Sheppard.....	3.41	30	40	10.06
Kirkland Lake.....	Timiskaming.....	Unattached.....	1.10	11	20	2.13
Lowbush River.....	Cochrane.....	“.....	.35	2	1	.19
Macfarlane.....	Kenora.....	“.....	.34	2	7	1.84
Missinaibi.....	Algoma.....	“.....	.77	3	2	.51
Moonbeam.....	Cochrane.....	“.....	.17	1		
Nakina.....	Thunder Bay.....	“.....	3.76	22	9	1.55
Shewsbury.....	Kent.....	“.....	3.09	2	2	3.09
Smyth.....	Timiskaming.....	“.....	1.75	6	2	.75
Timmins, Additional.....	Timiskaming.....	C. A. Duval.....	.47	1	3	.18
Valgagne.....	Timiskaming.....	Unattached.....	.31	1		
Winnipeg River Crossing.....	Kenora.....	“.....	1.23	2		
			54.39	139	115	30.87

Appendix No. 11—Continued

Statement showing islands and parcels sold as summer resorts.

ISLANDS SOLD

Part or Parcel	Township	District or County	Agent	No. of acres sold
Red Rock Island in Memesagamasing Lake.....	Hardy.....	Parry Sound.....	H. J. Ellis.....	1.
Island in Clear Lake.....	Patterson.....	" ".....	" ".....	4.
Island in Wauquimakog Lake...	Wilson.....	" ".....	I. M. Campbell...	.45
Beechwood Island.....	Baxter.....	Muskoka.....	W. G. Gerhart...	3.4
Island No. 34.....	".....	".....	".....	.5
Island opposite Lote 10 and 11, Con. 10.....	Burton.....	Parry Sound.....	I. M. Campbell...	2.
Island in Mattawan River.....	Dawson Road..	Thunder Bay....	S. H. Wilson.....	.25
Pine Island, Lake Huron, Parcel 20.....		Algoma.....	Unattached.....	1.4
Pine Island, Lake Huron, Parcel 19.....		".....	".....	2.
Island in Lake Nipissing.....	Himsworth.....	Parry Sound.....	H. J. Ellis.....	1.1
Big Island in Loon Lake.....	Anglesea.....	Addington.....	Unattached.....	3.5
Island in Pine Lake.....	McConkey.....	Parry Sound.....	I. M. Campbell...	4.45
Big Island in Loon Lake.....	Anglesea.....	Addington.....	Unattached.....	1.75
Parcel 28, Island H in Paudash Lake.....	Cardiff.....	Haliburton.....	A. N. Wilson.....	2.
Island in Trout Lake.....	McDougall....	Parry Sound.....	I. M. Campbell...	.9
Rock Island in Green Bay of Bobs Lake.....	Bedford.....	Frontenac.....	Unattached.....	2.50
Island in Peter's Lake.....	Bethune.....	Parry Sound.....	David Thaw.....	6.
Oak Island in Horseshoe Lake...	Foley.....	".....	I. M. Campbell...	.50
Island in Calabogie Lake.....	Blithfield.....	Renfrew.....	Unattached.....	3.
Island in Island Lake.....	Aweres.....	Algoma.....	".....	1.
Island A2 in Rainy Lake.....	Watten.....	Rainy River.....	C. J. Hollands...	2.7
Anderson Island in Weslemcoon Lake.....	Ashby.....	Lennox and Addington.....	Unattached.....	.60
McIlmoyl Island in Long Lake..	North Burleigh.	Peterborough...	Wm. Hales.....	.9
Island A 1 in front Lot 5, Con. 3.	Loudon.....	Nipissing.....	Jno. Brown.....	4.7
Island in Skelton Lake.....	Cardwell.....	Muskoka.....	W. G. Gerhart...	1.25
Island in Mill Lake.....	McDougall....	Parry Sound.....	I. M. Campbell...	.50
Avalion Island in White Lake...	Darling.....	Lanark.....	Unattached.....	.62
				52.97

Appendix 11—Continued

ISLANDS PATENTED

Statement showing islands patented as summer resorts.

Part or Parcel	Township	District or County	Agent	No. of acres patented
Karwartha Island.....	Nipissing.....	Parry Sound.....	I. M. Campbell...	1.2
South part Island 14, Ox Bay, Lake Nipissing.....	Allen.....	Sudbury.....	Unattached.....	4.9
Island 413 A, Georgian Bay....	Harrison.....	Parry Sound.....	I. M. Campbell...	1.19
Island 498 A, Georgian Bay....	".....	".....	".....	.86
Parcels 11 and 12, Island 510 A, Georgian Bay.....	".....	".....	".....	4.7
Island 553 A, Georgian Bay....	".....	".....	".....	.16
Island 940 A, Georgian Bay....	".....	".....	".....	.59
Island 941 A, Georgian Bay....	".....	".....	".....	.11
Island 942 A, Georgian Bay....	".....	".....	".....	.03
Echo Island, Boshkung Lake....	Stanhope.....	Haliburton.....	R. H. Baker.....	2.00
Part Island C, French River....	Mason.....	Sudbury.....	J. P. Marchildon..	5.00
Parcel 1, Island 133, Severn River.....	Baxter.....	Muskoka.....	W. G. Gerhart...	4.8
Beechwood Island and Island 134, Severn River.....	".....	".....	".....	3.9
Island in Mattawan River.....	Dawson Road..	Thunder Bay....	S. H. Wilson.....	.25
Island B 611, Georgian Bay....	Copwer.....	Parry Sound.....	I. M. Campbell...	1.4
Island B 722, Georgian Bay....	".....	".....	".....	.34
Island B 407, Georgian Bay....	".....	".....	".....	.60
Island B 704, or part of McLaren Island, Georgian Bay....	".....	".....	".....	3.00
Island B 421, Georgian Bay....	".....	".....	".....	1.7
Island B 422, Georgian Bay....	".....	".....	".....	1.3
Island B 118, Georgian Bay....	".....	".....	".....	2.00
S.E. part Franklin Island, Georgian Bay.....	Carling.....	".....	".....	4.00
Island B 194, Georgian Bay....	Wallbridge....	".....	Unattached.....	9.54
East part Island D 191.....	".....	".....	".....	5.00
Island C.....	Wilson.....	".....	".....	.45
Island F.P. 97, Pelican Lake....	Drayton.....	Kenora.....	".....	.10
Island F.P. 44, Abrams' Lake...	".....	".....	".....	4.25
Paudash Island, Loon Lake....	Chandos.....	Peterborough...	W. Hales.....	2.75
Quality Island, Loon Lake....	".....	".....	".....	.95
Middle Rock Island, Loon Lake.	".....	".....	".....	1.00
Little Pine Island, Loon Lake...	".....	".....	".....	.34
Big Pine Island.....	".....	".....	".....	1.25
Island W S 89, French River....	Mowat.....	Parry Sound.....	Unattached.....	4.5
Red Rock Island, Memesagamesing Lake.....	Hardy.....	".....	".....	1.00
Island A 5, French River.....	Blair.....	".....	".....	6.00
Island O, in Trout Lake.....	Palmerston...	Frontenac.....	".....	1.00
Island in Calabogie Lake.....	Blithfield....	Pembroke.....	".....	3.00
Island H, Maskinonge Lake....	Kelly.....	Sudbury.....	".....	3.00
Island S, St. Joseph Lake.....	Humphrey....	Parry Sound.....	I. M. Campbell...	.40
Island G, Clear Lake.....	Patterson....	".....	H. J. Ellis.....	4.00
Cameron Island, Weslemcoon Lake.....	Effingham....	Lennox and Addington.....	Unattached.....	.10
Island B 921, Georgian Bay....	Shawanaga....	Parry Sound.....	".....	.8
Island O, Wawashkosh Lake....	McKenzie....	".....	I. M. Campbell...	2.00
Island in Peter's Lake.....	Bethune.....	".....	David Thaw.....	6.00
Island in Beaver Lake.....	Sheffield....	Lennox and Addington.....	Unattached.....	.26
				101.12

Appendix 11—Continued

MAINLAND SOLD

Part or Parcel	Township	District or County	Agent	No. of acres sold
Part of lot 3, con. 8.	Wood.	Parry Sound.	I. M. Campbell.	.40
Part of lot 11, con. 8.	"	"	"	.37
Part of lot 15, con. 8.	"	"	"	.53
Part of lot 12, con. 8.	"	"	"	.42
Part of lot 16, con. 8.	"	"	"	.63
Part of lot 20, con. 8.	"	"	"	.57
Part of lot 9, con. 8.	"	"	"	.23
Part of lot 7, con. 8.	"	"	"	.19
Part of lot 8, con. 8.	"	"	"	.22
Part of lot 18, con. 8.	"	"	"	.57
Part of lot 19, con. 8.	"	"	"	.47
Part of lot 1, con. 8.	"	"	"	.1
Part of lot 2, con. 8.	"	"	"	.08
Part of lot 4, con. 8.	"	"	"	.11
Part of lot 31, con. 8.	"	"	"	.39
Lot 23, range 1.	Drayton.	Kenora.	Unattached.	3.83
Lot 1, range 5.	"	"	"	14.32
Lot 11, range 7.	"	"	"	4.59
Lot 19, range 6.	"	"	"	7.57
Lot 24, range 1.	"	"	"	5.50
Part of lot 25, con. 6.	"	"	"	3.00
Lot 88, range 1.	"	"	"	4.50
Parcel 4, part of lot 22, con. 17.	Ferris.	Nipissing.	W. J. Parsons.	1.00
Part lot 10, con. 4.	Marne.	Algoma.	Unattached.	3.80
Part broken lot 6, con. 10.	Anglesea.	Addington.	"	2.60
Part broken lot 6, con. 10.	"	"	"	1.70
Part broken lot 6, con. 10.	"	"	"	2.10
Part broken lot 6, con. 10.	"	"	"	4.00
Part broken lot 6, con. 10.	"	"	"	4.10
Part broken lot 6, con. 10.	"	"	"	4.10
Part broken lot 6, con. 10.	"	"	"	1.70
Part broken lot 6, con. 10.	"	"	"	1.70
Part broken lot 6, con. 10.	"	"	"	4.40
Parts broken lot 6, cons. 9 and 10	"	"	"	1.78
Part broken lot 6, con. 9.	"	"	"	.14
Part broken lot 6, con. 10.	"	"	"	4.34
Parts broken lot 6, cons. 9 and 10	"	"	"	4.43
Part broken lot 6, con. 10.	"	"	"	1.80
Part lot 5, con. 6.	Malachi.	Kenora.	J. E. Gibson.	1.70
Part lot 26, con. 9.	Hardy.	Parry Sound.	H. J. Ellis.	4.55
Part broken lot 2, con. 3.	Bigwood.	Sudbury.	J. K. MacLennan.	4.20
Part broken lot 2, con. 2.	Rowell.	Kenora.	J. E. Gibson.	5.00
Part broken lot 5, con. 10.	Jones.	Renfrew.	F. Blank.	5.00
Part lot 6, con. 1.	Striker.	Algoma.	Thos. Dean.	8.40
Part broken lot 31, con. 8.	Methuen.	Peterborough.	Wm. Hales.	1.00
Parts lots 26 and 27, con. 5.	Ridout.	Muskoka.	W. G. Gerhart.	2.00
Parts broken lots 5 and 6, con. "A"	McKinnon.	Algoma.	R. A. Teasdale.	5.00
Part broken lot, 5 con. "A"	"	"	"	5.00
Part broken lot 5, con. "A"	"	"	"	4.60
Part broken lot 13, con. 4.	Stanhope.	Haliburton.	R. H. Baker.	5.00
Parcel 5, part lot 20, con. 4.	Baxter.	Muskoka.	W. G. Gerhart.	3.16
Part broken lot 20, con. 4.	"	"	"	9.30
Part broken lot 21, con. 5.	"	"	"	5.00
Part lot 18, con. 7.	Gorham.	Thunder Bay.	S. H. Wilson.	20.00
Part lot 18, con. 8.	"	"	"	5.00
Part lot 26, con. 13.	Glamorgan.	Haliburton.	R. H. Baker.	1.00
Part lot 17, con. 4.	Ashby.	Lennox and Addington.	Unattached.	4.10
Part lots 17 and 18, con. 14.	"	Lennox and Addington.	"	5.00

Appendix No. 11—Concluded

Part or Parcel	Township	District or County	Agent	No. of acres sold
Part lot 19, con. 4.....	Cavendish.....	Peterborough...	A. N. Wilson....	1.25
Part lot 19, con. 4.....	".....	".....	".....	4.50
Part N.E. $\frac{1}{4}$, sec. 11.....	Aweres.....	Algoma.....	Thos. Dean.....	1.25
Part N.E. $\frac{1}{4}$, sec. 11.....	".....	".....	".....	1.60
Part N.E. $\frac{1}{4}$, sec. 11.....	".....	".....	".....	3.90
Part broken lot 26, con. 15.....	Effingham.....	Lennox and Add- ington.....	Unattached.....	4.30
Part lot 9, con. 1, and small islet	Maisonville....	Temiskaming....	J. E. Mills.....	5.00
Part lot 9, con. 1.....	".....	".....	".....	5.00
Part lot 9, con. 1.....	".....	".....	".....	5.00
				228.09

Appendix No. 12

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1924, to 31st October, 1925

Public Lands (late Crown).....	582
" " (late School).....	6
" " (late Clergy Reserves).....	3
" " (University).....	10
Free Grant Lands (Act of 1913).....	316
" " (Act of 1901 Veterans).....	8
Mining Lands (Patents).....	415
Mining Leases.....	168
Crown Leases.....	115
Licenses of Occupation.....	112
Temagami Island Leases.....	20
Sand and Gravel Licenses.....	28
Pine Patents.....	13
Water Power Leases.....	2
Orders-in-Council.....	5
Total.....	1,803

Appendix No. 13

Statement of the work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1925.

Veteran patents issued.....	8
Certificates surrendered for commutation money.....	5

Appendix No. 14

REPORT OF RECORDS BRANCH FOR YEAR ENDING OCTOBER 31ST, 1925

Communications received:

From Crown Land Agents.....	7,945
From Crown Timber Agents.....	4,483
From Mining Recorders.....	2,966
From Homestead Inspectors.....	2,042
From Superintendent Algonquin Park.....	306
From Superintendent Quetico Park.....	128
From Superintendent Rondeau Park.....	129
Orders-in-Council.....	298
Telegrams.....	182
Loan Commissioner (figures supplied by them).....	7,769
Forestry Branch (figures supplied by them).....	35,935
Colonization Roads (figures supplied by them).....	3,362
All other sources.....	27,382

Total incoming (Minister's office not included).....	92,927
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Communications sent out:

To Crown Land, Timber Inspectors and Park Superintendents.....	20,895
To General Public.....	19,267
Circular letters re timber sales and mill licenses.....	14,742
Maps and blueprints by Survey Branch.....	4,500
Loan Commissioner (figures supplied by them).....	12,809
Forestry Branch (figures supplied by them).....	24,528
(parcels and calendars, figures supplied by them).....	5,745
Colonization Roads (figures supplied by them).....	3,366

Total outgoing (Minister's office not included).....	105,852
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Postage:

Postage for the year, Records Branch.....	\$2,487 02
Postage for the year, Loan Commissioner.....	395 44
Postage for the year, Forestry Branch.....	802 24
Postage for the year, Colonization Roads Branch.....	130 66

Total for year.....	\$3,815 36
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Files:

New files issued, General.....	3,919
New files issued, Accounts chargeable.....	862
New files issued, Accounts free.....	289

Appendix No. 15

REPORT OF THE DIRECTOR OF SURVEYS

HONOURABLE JAMES LYONS,

Minister of Lands and Forests, Ontario.

Sir,—The survey of Crown lands carried on under direction of this Department during the past year consisted of 1,000 miles of lake, river and island traverse and 182 miles base and meridian lines, also township outlines, island surveys, subdivision of townships, summer resorts, town plots and other miscellaneous works as follows:

LAKE AND RIVER TRAVERSE

Little Current River, district of Thunder Bay, C. R. Kenny, Ontario Land Surveyor, Sault Ste. Marie.

Allanwater River and head waters of Ogoki river, district of Thunder Bay, James S. Dobie, Ontario Land Surveyor, Thessalon.

BASE AND MERIDIAN LINES

Boundary line (part) between districts of Cochrane and Thunder Bay and base line west therefrom, Speight & vanNostrand, Ontario Land Surveyors, Toronto.

Base and meridian lines, district of Cochrane, H. W. Sutcliffe, Ontario Land Surveyor, New Liskeard.

TOWNSHIP OUTLINES

Townships west of Lake Minnietakie and north of Canadian Pacific Railway, district of Kenora, Roy S. Kirkup, Ontario Land Surveyor, Port Arthur.

Townships along Canadian Pacific Railway west of Fort William, district of Thunder Bay, Lang & Ross, Ontario Land Surveyors, Sault Ste. Marie.

ISLANDS AND SUMMER RESORTS

Lakes in the townships of Bedford, county of Frontenac, Beatty & Beatty, Ontario Land Surveyors, Pembroke.

Lake Wanapitei, district of Sudbury, J. R. Gill, Ontario Land Surveyor, Sudbury.

Lakes in the townships of Elmsley, Burgess and Crosby, counties of Lanark and Leeds, J. W. Fitzgerald, Ontario Land Surveyor, Peterborough.

Lower and Middle Shebandowan and Kashabowie lakes, district of Thunder Bay, Phillips & Benner, Ontario Land Surveyors, Port Arthur.

TOWNSHIP SUBDIVISION

Residue of the township of Fauquier in the district of Cochrane, Thomas G. Code, Ontario Land Surveyor, Cobalt.

Re survey Sibley township (part), E. R. Bingham, Ontario Land Surveyor, Fort William.

TOWN PLOTS

- Allanwater, district of Thunder Bay, C. E. Fitton, Ontario Land Surveyor, Toronto.
- Nakina (addition), district of Thunder Bay, Speight & vanNostrand, Ontario Land Surveyors, Toronto.
- Gogama (addition), district of Sudbury, Lincoln Mooney, Ontario Land Surveyor, Sudbury.
- Macfarlane (addition), District of Kenora, C. E. Fitton, Ontario Land Surveyor, Toronto.
- Longlac, district of Thunder Bay, C. E. Fitton, Ontario Land Surveyor, Toronto.

MISCELLANEOUS

- Location of Geodetic survey stations, county of Renfrew and district of Nipissing, J. L. Morris, Ontario Land Surveyor, Pembroke.
- Location of Settlers in township of Phelps, T. G. Code, Ontario Land Surveyor, Cobalt.
- Inspection of surveys (field work), C. E. Fitton, Ontario Land Surveyor, Toronto.

Town and park lot subdivision of lands patented subsequent to 1910 have been approved pursuant to R.S.O. 1914, chapter 34, and amendments as follows:

- Valgagne town plot, north half lot 9, concession six, Taylor township, district of Cochrane.
- Ansonville addition (Shisko subdivision), south half lot 2, concession 4, Calvert township, district of Cochrane.
- Victoria (Harrop subdivision), north half lot 2, concession 4, Calvert township, district of Cochrane.
- Pancake town plot, subdivision mining claim L-9513, McVittie township, district of Timiskaming.
- Crown City town plot subdivision mining claims L-8825, 8826, McVittie township, district of Timiskaming.
- McCuaig subdivision of mining claim L-4438, McVittie township, district of Timiskaming.

Extracts from reports of the several surveyors employed during the year describing the physical features of the country traversed will be found in appendices 20 to 27.

There has been published during the year a list of the Water Powers of the Province compiled from the best available data. For information and ready reference this list seems to have met with approval and much appreciation by those seeking information regarding the Water Powers of the Province.

The following maps have been published during the year:

- 19-A—New edition of Huron and Ottawa territory.
- 25-A—New map of easterly part of Cochrane district.
- Map of pulpwood and timber limits, Cochrane district.
- Map pulpwood and timber limits, Thunder Bay district.
- 24-B—New edition part of Northern Ontario, comprising districts of Algoma, Sudbury, Timiskaming and Cochrane.
- 24-D—New edition Georgian Bay islands between Key Harbour and Byng Inlet, district of Parry Sound.
- 24-E—New edition Georgian Bay islands in front of townships of McDougall and Carling, district of Parry Sound.

L. V. RORKE,

Director of Surveys.

Appendix No. 16

Statement of Municipal Surveys confirmed during the twelve months ending
October 31st, 1925

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes, 1920, chap. 48, sec. 18
1	Speight & van- Nostrand.	737	Nov. 28, 1923	Survey the limits of the road allowance between cons. 1 and 2 east of Hurontario St. in front of lots 1 to 5, incl., in the twp. of Toronto, county of Peel.	Oct. 3, 1925
2	F. N. Rutherford..	739	June 12, 1924	Survey of road allowance between the townships of Louth and Pelham across lots 7 to 10, incl., in the township of Louth.	July 6, 1925
3	Speight & van- Nostrand.	741	Sept. 2, 1924	Survey the original road allowance between lots 10 and 11, across cons. 7 and 8, in the township of Toronto Gore.	Mar. 3rd, 1925
4	George L. Brown..	742	Jan. 6, 1925	Survey the road allowance between the townships of the front of Yonge and Escott and the rear of Yonge and Escott across lots 13 to 24, incl., being the line between the 5th and 6th cons., and to plant standard iron monuments.	June 1, 1925
5	Roger M. Lee.....	744	June 26, 1925	Survey front and rear angles of all lots in that part of block "Y" east of the Wilkes tract in the city of Brantford, bounded on the north by Grey St., on the east by Maitland St., on the south by Marlboro St., on the west by the easterly limit of that portion of said block included in plan No. 338 registered in the Registry Office Division of the County of Brant on the 18th April, 1912.	Oct. 15, 1925

Appendix No, 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1925.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey
1	George L. Brown..	742	Jan. 6, 1925	Survey the road allowance between the townships of the front of Yonge and Escott and the rear of Yonge and Escott across lots 13 to 24, incl., being the line between the 5th and 6th cons., and to plant standard iron monuments.
2	Speight & van-Nostrand.	743	April 27, 1925	Survey to define the limits of Simcoe Street in the city of Toronto, from King Street to Queen Street and to mark the same with standard iron monuments.
3	Roger M. Lee.....	744	June 26, 1925	Survey front and rear angles of all lots in that part of block "Y" east of the Wilkes tract in the city of Brantford, bounded on the north by Grey St., on the east by Maitland St., on the south by Marlboro St., on the west by the easterly limit of that portion of said block included in plan No. 338 registered in the Registry Division of the county of Brant on the 18th April, 1912.
4	Roger M. Lee.....	745	Aug. 25, 1925	Survey the road allowance between the 6th and 7th cons. of the township of Burford across lots 13 to 18, incl., and to place stone or other durable monuments to mark the boundaries of the said road allowance.

Appendix No. 18

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1925

No.	Date of instructions	Name of Surveyor	Description of Survey	Amount
1	April 1, 1925	J. L. Morris.....	Survey certain triangulation stations established by the Geodetic Survey.....	\$500 00
2	April 15, 1925	Beatty & Beatty...	Traverse survey of shores certain lakes in the township of Bedford.....	3,190 00
3	April 3, 1925	C. R. Kenny.....	Traverse survey Little Current River.....	3,900 00
4	April 1, 1925	J. R. Gill.....	Survey islands and summer resort lots at Lake Wanapitei, district of Sudbury....	2,300 00
5	April 8, 1925	J. W. Fitzgerald....	Traverse survey of shores of certain lakes in Elmsley, Burgess and Crosby.....	6,370 00
6	April 15, 1925	Lang & Ross.....	Survey township outlines along C.P.R. district, Thunder Bay.....	4,500 00
7	April 15, 1925	H. W. Sutcliffe....	Survey certain meridian and base lines, district of Cochrane.....	6,400 00
8	April 15, 1925	T. G. Code.....	Survey residue township Fauquier and shore of Remi Lake.....	1,388 00
9	April 16, 1925	Phillips & Benner...	Survey summer cottage sites on shores Lower and Middle Shebandowan Lakes..	5,550 00
10	April 21, 1925	James S. Dobie....	Traverse survey Allanwater River and head waters Ogoki River.....	7,500 00
11	April 22, 1925	C. E. Fitton.....	Inspection of field surveys, 1925.....	3,500 00
12	April 15, 1925	C. E. Fitton.....	Survey town plot Allanwater.....	200 00
13	"	Rice Lewis & Co....	Iron posts.....	205 00
14	"	Baines & David....	Iron posts.....	34 50
15	Oct. 5, 1925	R. S. Kirkup.....	Subdivide townships Echo and part Pickerel and Vermilion townships, district of Kenora.....	1,500 00
16	Oct. 16, 1925	E. R. Bingham....	Re-survey of northeast part township Sibley, district Thunder Bay.....	200 00
17	Oct. 17, 1925	J. T. Coltham.....	Survey of islands in southeast end of Lake Nipissing, district Parry Sound.....	400 00
18	Oct. 21, 1925	Lewis & MacRostie.	Tracing of interprovincial boundary in front of Prescott, Ottawa River.....	18 00
				<u>\$47,655 50</u>

Appendix No. 19

Statement of Crown Surveys completed and closed during the twelve months ending
October 31st, 1925

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount Paid
1	Oct. 24, 1924	Roy. S. Kirkup.....	Survey summer cottage lots, White Sand Lake.....	\$1,666 20
2	Oct. 8, 1924	E. L. Moore.....	Survey summer cottage lots, lot 22, con. 17, township of Ferris.....	201 75
3	Nov. 1, 1924	C. E. Fitton.....	Lay out a number of lots, township of Bigwood.....	257 83
4	April 24, 1924	J. S. Dobie.....	Traverse of English River, etc., districts Kenora and Patricia.....	3,210 00
5	Mar. 31, 1924	C. R. Kenny.....	Traverse of Little Current River, etc., district Thunder Bay.....	2,238 56
6	Mar. 27, 1924	T. J. Patten.....	Traverse of Drowning River, etc., district of Cochrane.....	2,951 37
7	April 10, 1923	Roy S. Kirkup.....	Traverse of shore and islands, Minnietakie Lake.....	206 20
8	May 28, 1925	L. Mooney.....	Survey lot 34, con. 14, Burton.....	183 55
9	April 15, 1925	L. Mooney.....	Survey addition to Gogama town site.....	235 78
10	April 15, 1925	Roy S. Kirkup.....	Survey township outlines north of C.P.R., district Kenora.....	4,858 50
11	April 15, 1925	Speight & van- Nostrand.	Survey boundary line of Cochrane and Thunder Bay.....	8,006 02
12	Aug. 17, 1925	Speight & van- Nostrand.	Survey of lots, town plot, Nakina.....	388 13
13	July 4, 1925	T. G. Code.....	Survey lots 11, 12, 13, 14, cons. 3 and 4, township Phelps.....	468 00
				<u>\$24,871 89</u>

Appendix No. 20

Extract from report of T. G. Code, O.L.S., survey of residue, township of Fauquier, district of Cochrane.

FORMATION

"There are very few out-croppings of rock except along the shores of Remi Lake. These are mostly granite.

SOIL

"The soil is a sandy clay loam. Very suitable for agriculture.

TIMBER

"On the high land which is about fifty feet above the level of Remi Lake, the timber consists of poplar, birch, spruce and balsam. Poplar and birch predominating. The size of timber being from 2 to 12 inches. In the swamps the timber is mostly spruce of from 2 to 12 inches with some cedar and balsam.

"There is only one muskeg in this portion of the township, being near the west boundary. The timber here is very small spruce and some green tamarac."

Appendix No. 21

Extract from report of James S. Dobie, O.L.S., survey of lakes and rivers, including parts of Winnipeg and English rivers, district of Kenora.

"Standard metal posts or monuments were cemented into holes drilled in the rock at regular intervals along the shore in a manner similar to that described last year. Twenty-two of these monuments were planted during the season. In addition to these all permanent bench marks planted by the Geodetic Survey of Canada along the line of the survey were located and properly tied in. There were six of these bench marks including concrete monument No. 82, on the south shore of Winnipeg river where it is crossed by the Ontario-Manitoba boundary.

"The survey of the portion of English and Winnipeg rivers completed during the season was started at the outlet of One Man lake where post No. 338 was planted at the end of the season of 1923. The survey was carried as far as the Ontario-Manitoba boundary, and up the Winnipeg river to Hudson's Bay Company's post at White Dog, where a connection was made with the survey of the Winnipeg river made by T. D. Green, O.L.S., in 1911. It was also carried up Scot river as far as the first rapids, and through Swan lake to the south of Cygnet river. From this point it was continued up Cygnet river, through Cygnet lake and again up the river and into Otter lake where it was connected with the north boundary of the township of Malachi.

"The general characteristics of the country along the portion of the English and Winnipeg rivers surveyed during the season of 1924 are very similar to those described last year. Immediately below Island No. 603 which divides

the outlet of One Man lake into two parts, the English river widens out somewhat, but about three-quarters of a mile downstream there is a drop of one foot. There are several islands here and the northern channel is the main one. There is a strong current in this channel and it is the one used by canoes going downstream as the water is not so rough. Coming upstream the current can all be avoided by a lift of less than the length of a canoe at one of the southern channels.

"A short distance below this rapid, English river widens out into Deer lake which is about nine miles long. There are numerous islands in Deer lake, some of them large and well timbered. There is a river-like narrows on the north side which leads into a bay about a mile and a half across, and a fair-sized stream enters the north side of this bay. This stream was traversed as far as the first portage, which occurs about a mile upstream. There is here a well travelled portage which forms part of a canoe route to some fairly large lakes in the interior.

"During the season of 1924 two fish companies were fishing for sturgeon in Deer Lake. One company took their catch to Minaki for shipment, and the other shipped from Malachi.

"A little below Deer lake is Deer falls where the English river takes a sudden drop of 11.6 feet. About half a mile down stream there is a further drop of 0.3 feet so that by raising Deer lake one foot, and thereby flooding out the one foot drop shortly below One Man lake, a total head could be secured here of 13 feet. Assuming the flow to be 9,000 c.f.s. this head with 80 per cent. efficiency would give 10,700 horsepower. There is an ideal site for building a dam and power house, and no expensive flume would be necessary. The splendid storage facilities afforded by the many large lakes on the English river add much to the attractiveness of Deer Falls as a power proposition.

"A water power reserve was posted here sufficiently large to afford room for any power development that may be projected in the future at this point. The boundaries of the water-power reserve were not cut out on the ground.

"About four and a half miles below Deer Falls the English River joins the Winnipeg River, the intervening stretch of country being high and rocky with a considerable area of young second growth poplar, jack pine, etc.

"A short distance below the junction on the east side, the north boundary of the Islington Indian Reserve strikes the Winnipeg River. There is an iron post near the shore marked I.R. on the south side near this point, and this post was tied to the traverse. The shores of Islington Indian Reserve were not traversed.

"Continuing west and southwest the Winnipeg River broadens out into a considerable lake expansion with many large islands. The largest of these is Island No. 716 which has a total area of 988 acres. Three posts were planted on this island.

"Just below Island No. 716 the Winnipeg River narrows and there is quite a perceptible current. A mile or so downstream is North Boundary Falls where the river falls $3\frac{1}{2}$ feet in a few yards. North Boundary Falls is divided by a high rocky island, the main stream being on the north side. South Boundary Falls is about two and a half miles south of North Boundary Falls, and Boundary Island lies between the two. The volume of water passing over South Boundary Falls is much less than that passing over North Boundary Falls.

"Boundary Island is the largest island surveyed during the season, it having an area of 1,681 acres. The north part of this island is rough and rocky with some small patches of clay, but the southerly part is lower and the proportion

of clay is much higher. There is a large marsh lying at the end of a bay running to the southeast, just above South Boundary Falls, and there is a fairly extensive area of low ground in this neighbourhood.

"Water power reserves were posted at both North and South Boundary Falls, but the lines were not run out on the ground. These reserves were laid out so that the water power here might be protected provided at any time in the future it might be considered advisable to place dams here which would flood out some of the falls higher up on the English and Winnipeg Rivers. There would be no difficulty in constructing dams here high enough to raise the water in English River as far as the foot of Kettle Falls. This would give a head of seventeen feet, and this with the combined flow of both the English and Winnipeg Rivers would make a very attractive power possibility of probably 30,000 horsepower. This, however, would involve the construction of three dams, and would also mean reducing the available head at White Dog Falls on the Winnipeg River by about thirteen feet, which is a very important consideration.

"Below Boundary Falls the river unites again and the main stream crosses the Ontario-Manitoba boundary about two and a half miles northwest of North Boundary Falls. A large bay crosses into Manitoba a little over a mile south of where the boundary crosses the river proper. This bay runs for a considerable distance into Manitoba and there appears to be much low ground to the west and southwest.

"In my instructions, I was requested to examine the shores of Winnipeg River to see if there is a possibility of a water power concentration below the confluence of the English and Winnipeg Rivers which may serve to combine White Dog Falls on the Winnipeg River with the falls on the English River. Such a concentration would necessitate raising the water of Winnipeg River above Boundary Falls about forty-five feet, and the nature of the ground at Boundary Falls and for some distance upstream is of such a nature that this project is not feasible.

"While examining the area of clay land in the neighbourhood of the Inter-provincial boundary, the lines and monuments were found of a township surveyed some years ago under the Dominion Lands System. This survey was evidently inadvertently carried over the boundary which had not at that time been produced that far.

"In the neighbourhood of the Interprovincial boundary the poplar trees were stripped bare of leaves by countless millions of caterpillars. These did not appear to have extended more than three or four miles into Ontario.

"After completing the traverse of English and Winnipeg Rivers, the survey was carried up Cygnet River, through Cygnet Lake and then up the river to the north boundary of the township of Malachi.

"Cygnet Lake is six miles long and has high rocky shores with some small areas of clay in places. The timber generally speaking is second growth about thirty to thirty-five years old, poplar predominating with spruce, jack pine and other characteristic throughout. There are twelve islands in Cygnet Lake and these were numbered from one to twelve and each island marked as previously described. The largest island has an area of 212 acres.

"Above Cygnet Lake the river is very sluggish and flows through a broad valley where there are considerable areas of muskeg, but where high rocky hills in some cases come close to the water's edge. A short distance below the Canadian National Railway there is a drop of 20.2 feet and at the railway there is another drop of 9.8 feet. These two can be combined at the lower falls so as to give a drop here of 30 feet. A water power reserve was laid out as a small

power suitable for local purposes could be very conveniently developed here. Similarly water power reserves were posted where the river enters Cygnet Lake and also where the river falls into the Swan Lake expansion of Winnipeg River. Heads of 19.6 feet and 13.9 feet respectively can be developed at these points and good sites are available for the construction of the necessary dams and power houses. At the south of Cygnet River the natural head of 13.9 feet can be materially increased as there are two falls, one of 16.6 feet and one of 10.8 feet a short distance upstream but it is doubtful if the nature of the ground will permit of the whole head being concentrated here. The facilities for a good small power here are very good as Cygnet Lake will make a splendid storage reservoir. The value of this power would of course be destroyed should it ever be decided to concentrate any of the water powers on the English and Winnipeg Rivers at Boundary Falls.

"On the north side of Otter Lake, just north of Malachi township some cottage sites have been surveyed. Where posts could be found marking these surveys, they were tied to the survey.

"A survey was made of the portion of Hawk Lake lying north of Islington Indian Reserve, as well as of the small stream by which Hawk Lake empties into One Man Lake. This waterway forms part of a much travelled canoe route from Minaki to One Man Lake. This survey was started at an iron post marked I.R. on the south side, on the east shore of Hawk Lake and finished at Post No. 336 planted in 1923.

"The country around this portion of Hawk Lake is high and rocky timbered with spruce, jack pine, poplar, birch, etc. There are seven islands in this portion of Hawk Lake, and these were surveyed and numbered from one to seven in the manner previously described.

"A traverse was made of the chain of small lakes forming the canoe route from Sand Lake to Fiord Bay on English River, where it was connected to Standard Metal Post No. 293 planted in 1923. This traverse was started from the approximate position of post W. 37, planted by T. D. Green, O.L.S., in his survey of Sand Lake and Winnipeg River in 1911. Unfortunately post W. 37 had been removed from its proper position as it was found lying on the beach some distance away. There was not sufficient information available to enable me to locate this post exactly so that its correct position had to be estimated. From the nature of the ground it is almost a certainty that the true position of this post is very close to the estimated position.

"The traverse of these lakes followed the canoe route in addition to which a complete survey was made of all the lakes passed through. There are five islands in these lakes all marked in the usual manner. This route is much used by tourists, fire rangers and others and forms a short cut from Minaki to English River. The country along this route is generally high and rocky and is well timbered throughout with spruce, jack pine, poplar, birch, balsam, etc., with occasional clumps of red pine. There are some fairly large areas of second growth of varying ages and in some cases the second growth is quite young following comparatively recent fires.

"A survey was also made of East Lake at Jones Station on the Canadian National Railway. Favel Lake and thence north through Keyes, Bert, Delaney and other lakes to a bay running south from Grassy Narrows Lake on the English River, where a tie was made to transit station No. 187 of the survey of 1923. Returning to the east end of Favel Lake the survey was carried along the Canadian National Railway past Favel Station to Canon Lake, of which

a complete survey was made, after which the traverse was carried down Canon River to the Wagagoon River.

"East Lake, Favel Lake and Canon Lake occupy a long narrow basin running almost due east and west between high hills on both sides. The Canadian National Railway runs along the north side of East and Favel Lakes, and along the south side of almost the whole of Canon Lake. The timber along the shores of these lakes is generally spruce, jack pine, poplar, birch, etc., with considerable areas of second growth, much of it dating from fires which apparently occurred during the construction of the railway. There are some small areas of red pine from which the best appears to have been cut."

Appendix No. 22

Extract from report by T. J. Patten, O.L.S., survey of Drowning River, district of Cochrane.

"In the Twin Lakes country and down the Drowning River about ten miles, there is a good deal of old *brulé* with small timber and occasional tracts of the old bush with large white and black spruce, poplar, balm of gilead, jack pine, white birch, balsam and cedar. The cedar is found only along the shores. This country is mostly rolling with some hills, excepting along the flats of the river and is mostly sand and gravel and boulders with outcrops of granite, hornblende and gneiss. There are some patches of good clay land, but possibly not enough for settlement. I have seen, though, a German settlement in the county of Renfrew on the Bonne Cherre River, in apparently no better country than the Twin Lakes.

"Below the 37th post there is little *brulé* and more clay country. The clay is mostly of a dark, rich nature, unlike the white clay which occurs in some parts of the clay belt.

"The same timber is found all the way down the river, details of which are found on the several plans. New tamarac to about six inches in diameter were not observed until pretty well down the river.

"Below Relief Lake the timber mentioned is mostly of good size all down the river for about a quarter of a mile from it, then muskeg, more or less wet or open for a mile or so back, is found with black spruce varying in size according to the amount of water in the muskeg. Some tracts of black spruce in the muskeg were noted to be about ten inches in diameter.

"Down to about the last portage near the 98th post, there is an occasional outcrop of granite and the soil is sand and gravel with some clay. Below the last portage there is scarcely any rock, except the cliffs of limestone from the 182nd to the 186th posts. Some of this limestone is very soft and white. Some limestone deposits and "float" were seen in the river above there.

"The soil below the last portage is sand and clay, which in a number of places is mixed together. Some gravel was observed, also cobble stone.

"The only considerable falls are at the following points:—

At the 34th post.....	11.6 feet fall.	
39th "	7.15	"
64th "	18.7	"
70th "	15.4	"
85th "	15.3	"
87th "	25	"
Above 93rd "	9.3	"
Blow 93rd "	22	"
At 95th "	9.3	"

"I have noticed that the height of fall at the 87th post at the confluence with the Wabimiga River is marked 35 feet on the maps of the Department. It may be only an estimate. I measured carefully the height of the falls. A considerable power might be developed at this point by using the water of both streams.

"Pike and pickerel are abundant and down to the Tin Can Portage, Post No. 70, there are plenty of speckled (rainbow) trout up to a foot long. American tourists are aware of the good fishing and two parties were met with during the work.

"There seems to be lots of moose. We did not see many deer. The fur bearing animals do not seem to be plentiful."

Appendix No. 23

Extract from report by Speight & van Nostrand, O.L.S., survey of base line in district of Thunder Bay and part of boundary between Cochrane and Thunder Bay districts.

TIMBER

"The tremendous loss of timber wrought in the past by fire throughout Northern Ontario, was again brought home to us during the progress of the survey. Almost 75 per cent. of the land traversed had been burned over during the last 25 years and on some of the area the new growth has been repeatedly destroyed. The most suitable timber encountered lies to the southeast of the valley of the Squaw River, along the east and north boundaries of the township of Nakina, and on the east boundary of the township of Alpha. In this area are some good stands of jack pine and spruce. From Grave Lake north to Percy Lake practically all the commercial timber has been burned. The young trees are mostly jack pines or less frequently, spruce, now about 20 to 25 years old and of very good type. Some of the new growth is very dense. North of Percy Lake we found considerable good spruce of medium size. From Spider Lake westward along our base line we saw comparatively little unburned timber. This was probably accounted for by our proximity to the railway. We judge that part of the burn crossed was of a more or less local character, possibly due to fires when the right of way was cleared.

SOIL

"The lands traversed by our lines were, for the most part, unsuited for agriculture. Some promising clay soil and clay loam was noted in the vicinity of Medugama Lake, while to the north of Percy Lake the land was level or gently rolling, and the soil of the type found throughout the northern clay belt. Elsewhere the ground was broken or hilly, and under the surface vegetation we found rock, or the sand, gravel and boulders left at the end of the ice age.

MINERALS

"The rocks exposed along the meridian line were granites with an occasional dyke of diabase. Along the eastern part of the base line, however, the rocks were of a more varied character, showing exposures of porphyry, lava schist, hornblends, etc. A number of iron deposits have been located and claims staked south of the Canadian National Railways between Paska and Kowkash stations. We did not note any development work in progress, however. We found that several claims had been restaked recently near the east boundary of the Nipigon Forest Reserve. Apparently gold was the objective of the prospectors. A geological survey of this area was made by the Ontario Bureau of Mines and a map on the scale of two miles to the inch published with a report of the Bureau in 1917.

WATER POWER

"We had little opportunity to judge the water power available on the rivers crossed, but the Little Current River is apparently the largest potential source of power. The survey of the river being made for your department will, however, indicate what can be expected in this direction.

FISH AND GAME

"The country crossed by our lines is said to be a good marten area. Beaver do not seem to have worked there for many years, as any signs noted were very old. Moose were plentiful from Twin Lakes to Grave Lake. To the north of Grave Lake, however, not many signs were observed. From the Kowkash River west, they seemed to be numerous. Deer were seen at Twin Lakes. Rabbits abounded everywhere, but partridge were scarce and the young broods had suffered severely from an unfavourable spring. Few of the hens had more than two or three chicks. The rivers and lakes abounded in pike and pickerel, and many of the streams supply excellent sport to the fisherman after trout.

CANOE ROUTES

"The Squaw, Esnagami, and Little Current Rivers are travelled regularly by Indians and tourists and the whole area is dotted with lakes, large and small, most of which are linked together by portages.

GENERAL FEATURES

"From the Canadian National Railway to Percy Lake, the country traversed by our meridian line is rolling rather than hilly. There are occasional exposures of granite but for the most part the rock is buried under deposits of sand,

gravel and boulders left by the retreating glaciers. North of Percy Lake the country is flat and the soil is mostly clay, though it varies somewhat, and in some places is a light sand or a sandy loam. The tree growth is largely spruce.

"Along the base line from near Cavell westward, the country is more rugged. The hills attain a height of seventy-five to one hundred feet, and considerable areas of bare rock are exposed."

Appendix No. 24

Extract from traverse survey by C. R. Kenny, O.L.S., of Little Current River, district of Cochrane.

WAWONG LAKE

"Wawong Lake lies about fifty chains north of the Canadian National Railways from a point one mile and forty-eight chains measured easterly from Cavell Station.

"The lake has 20 islands and about 34 miles of shore line—has clear water of moderate depth and generally free from muddy beaches and bays, and could be navigated with small boats or launches.

"A local height of land occurs near the northerly limit of the lake, causing the water to flow in a southerly direction through a creek outlet from the south-easterly and reaching the Kawashkagami River in a distance of about a mile and eventually flowing into the Little Current River via Abamasagi and O'Sullivan Lakes.

"The shores slope gently upward and the soil is of clay and sand.

"The timber adjacent to the lake and surrounding country in general consists chiefly of poplar and birch to 15 inches and a moderate quantity of spruce and balsam to 10 inches interspersed with areas of jack pine—a good deal of it below merchantable size.

ESNAGAMI LAKE

"Esnagami Lake lies about two and one-half miles northwesterly from Wawong Lake and is reached by making five portages there being five small lakes between, four of which are headwaters. It has 186 islands and about 80 miles of shore line.

"The lake is clear water and of good depth, making it possible to navigate with small boats and launches.

"Upon immediately approaching this lake a decided geographical change takes place with the surrounding country which is rock formation overlaid with clay and sandy soil.

"The banks are of exposed rock, sloping gently upward and in no place precipitous. The beaches generally are strewn with stones and boulders.

"The outlet is a small river flowing in a northeasterly direction and emptying into the Little Current River in a distance of about 50 miles.

"Timber along the banks of the lake and in the vicinity consists principally of poplar and spruce of pulpwood size—balsam, cedar and birch and occasional ridges of jack pine, much of it undersized for timber.

O'SULLIVAN LAKE

"This lake lies northwest of Esnagami Lake, a portage of about three miles between the two having to be made. The lake can be more easily reached by using the Kawashkagami River which enters it at the westerly side and outlets at the most northerly limit, thence flowing in a northeasterly direction, makes its way to the main course of the Little Current River in a distance of about 18 miles.

"The lake has 167 islands and about 80 miles of shore line and in appearance very similar to Esnagami Lake—rocky banks and beaches of stones and boulders or flat rock.

"The country about is hilly and rocky, overlaid with clay and sandy soil, timbered chiefly with poplar and spruce to 15 inches—birch, balsam and cedar, and scattered areas of sandy ridges carrying jack pine to 10 inches. In a few places the country in the vicinity of the lake has been swept by fire, leaving it almost barren.

KAWASHKAGAMI RIVER, FROM HOWARD FALLS TO ABAMASAGI LAKE AND THENCE TO O'SULLIVAN LAKE

"From Howard Falls the Kawashkagami River follows a northerly course for a distance of about ten miles to Abamasagi Lake; thence, turning sharply sharply to the east, it continues on in a southeasterly direction to the west shore of O'Sullivan Lake, a distance of eight miles. The banks are of clay soil and well defined, varying from three to seven feet in height. The bed of the stream is composed of clay, sand and gravel, with numerous boulders and rock occurring at falls and rapids.

"The river varies in width from four to one chains, with an average of two chains and an average depth of about five feet. Its fall from Howard Falls to O'Sullivan Lake is sixty-one and one-half feet, about half of this taken up in the above mentioned falls and Albert Falls, the balance being mostly in five rapids.

"This section of the river is easily navigated with large or small canoes. The portages are short, with good footing and landings and easy approaches.

"If care is taken, four of the five above mentioned rapids can be used with fair loads in large canoes. The second rapid upstream from O'Sullivan Lake can only be navigated part way, there being a dangerous chute at the foot.

"Along the banks and the country adjacent, the timber consists principally of poplar and birch to 10 inches, interspersed with a goodly quantity of spruce for pulpwood. In a few places near the river fire has destroyed some valuable areas of spruce wood.

"Prospecting for gold in schists and porphyry rock near Howard Falls still remains active, much work in stripping, sinking shafts, etc., has been done, giving fair results as to mining possibilities."

ABAMASAGI LAKE

"Abamasagi Lake has twenty-six islands and about thirty-two miles of shore line.

"The banks are of clay and sandy soil, varying in height from three to fifteen feet. The shores throughout are stone and numerous large boulders. The water is clear and of moderate depth.

"The lake is a tributary of the Kawashkagami River which enters at the southeasterly end, then turns sharply to the east and flows southeasterly to O'Sullivan Lake, a distance of eight miles.

"The country about is of clay and sandy soil and fairly level, with occasional outcrops of rock, timbered with chiefly poplar and birch to 12 inches, a fair quantity of spruce to 20 inches, balsam and cedar and scattered areas of jack pine to 12 inches."

Appendix No. 25

Extract from report by H. W. Sutcliffe, O.L.S., survey of base and meridian lines in vicinity of Opazatika and Missinaibi rivers, district of Cochrane.

TIMBER

"It will be observed on departmental maps that all the streams flowing to James Bay drop several hundred feet in the course of a few miles and along a line somewhat parallel to and about thirty or forty miles north of the Cochrane-Winnipeg main line of the Canadian National Railway. A considerable portion of my work lay in this area. It was very disappointing indeed to find that so much of this country had been burned, presumably at the time of railway construction. Fires evidently started at several points along the railway and ran north until they reached the steep slope, which, being better drained, offered less resistance to the fire, which seems to have pretty well spread over the entire slope in this locality. The timber was naturally somewhat larger on this better drained land, with the result that a very large amount of valuable timber was destroyed. It would indeed be difficult to estimate the cost of the railway in the loss of timber.

"Meantime second growth timber has sprung up through the old slash. On the high and sandy stretches this new timber is largely poplar and jack pine, although there are some areas on which considerable young spruce is coming along. I would, however, consider the spruce regeneration a little disappointing. If fire overruns this area again the spruce will undoubtedly practically disappear.

"Above and below this slope there is some timber mostly in patches. Generally speaking, the area covered by this survey certainly cannot at the present be considered a timber area of great importance.

SOIL

"The soil is characteristic of the northern clay belt. On the steep slope the soil is sandy, but much of it will be fit for agriculture. On the flat areas it is mostly clay and will some day be considered good agricultural land. In this area I believe that even the muskegs can be turned into agricultural land, as they are on elevations high above the rivers and can be easily drained.

WATERCOURSES

"There are a number of small streams between the Opazatika and Missinaibi Rivers which can be navigated by canoes. The streams will in the future prove useful as drainage outlets. We saw no lakes of importance.

ROCK FORMATION

"It was only on the steep slope that we saw any rock exposures which were chiefly granite. Limestone showed where we crossed the coal river.

ANIMAL LIFE

"This area seemed to me to be more destitute of animal life than any part of Northern Ontario I have been in. This may be partially due to the big fire about twenty years ago.

"On the way down the Opazatika from the railway as far as Indian Sign Falls there seemed to be an abundance of animal life, but below that we saw very little game. Fish are plentiful in the larger streams, the principal being pickerel."

Appendix No. 26

Extract from report by Lang & Ross, O.L.S., survey of certain township outlines along Canadian Pacific Railway, district of Thunder Bay.

"We commenced work in the field on May 7th and completed it on July 16th.

SOIL

"Level muskegs and ridges are about in the proportion of ten to one. Underlying the muskeg, in depths varying from two feet to fifteen feet, is clay similar to that found in the clay belt. The ridges are in the main clay loam but occasionally consist of glacial deposits of sand, gravel and boulders. The best section for agricultural purposes is in the neighbourhood of the north boundary of Joynt, in the township of Stedman and in the township of Inwood.

MINERAL

"No trace of valuable mineral was found. In the township of Stedman there are outcroppings of granite which show quartz stringers.

TIMBER

"Spruce predominates over the whole area, being scattered and stunted in the large muskegs, but of merchantable size in the swamps which are well drained. There is also a good deal of white birch and poplar on the ridges. As our timber plan will indicate, almost fifty per cent. of the country has been swept by fire and is now covered with second growth timber fifteen to twenty feet high.

GAME

"There are quite a few moose in the district but no evidence of red deer. Partridge were scarce. A few English pheasants were seen in the neighbourhood of the railway. We were informed by the Indians that fur bearing animals were very scarce.

FISH

"There are pike, pickerel and suckers in the rivers and lakes and also a few whitefish in Lac des Milles Lacs."

Appendix No. 27

Extract from report by Roy S. Kirkup, O.L.S., survey of certain township outlines, district of Kenora.

"We reached the scene of our work via the nine mile portage from Dinorwic to Bog Sandy Lake. From there we took the route via Flat Rock, Cross, Kathlyn, Maskinonge, Little Vermilion, Cedar and Big Lake to Pickerel Narrows.

"There is a short portage from Little Vermilion to Big Vermilion which is the shortest route to Hudson, on the C.N.R. There is also a portage from the east end of Little Vermilion to Abram Lake, which is used quite frequently by tourists.

"A Watt five-inch and Davis six-inch transit were used throughout the entire survey and great care was taken to keep them in adjustment. Frequent observations for meridian were taken to check the direction of my lines and copies of these are appended hereto.

"The weather throughout the season has been the worst I have experienced for several years. The rain started on May 30th, and we had rain in various quantities every day until June 24th, so the swamps became flooded and even on the low ground the water laid in pools which made going very disagreeable.

"Appended hereto are two plans, one on mounted linen and a timber plan, on the scale of one inch to the mile, showing the topography along the lines, outlines of interior lakes, the various portages and timber, observations, field notes, cruisers' reports, index maps, affidavits for chainmen, and surveyor, and my accounts in triplicate, all of which I trust you will find correct. Herewith is a report on the land:—

BIG SANDY LAKE BLOCK

"This block of land lies north and west of Big Sandy Lake; the largest portion of arable land on this block is north and northeast of Flat Rock Lake; the remainder south and southeast of Cross Lake extending close to Big Sandy Lake. There are some very small flats of lands in other parts of this block, but very much broken with rock.

LAVAL TOWNSHIP

"I must say that this block is very poor; it is very rocky and a quantity of sand and gravel and some muskeg with sand bottom and a lot of water. The land suitable for agriculture in this township is about forty per cent., the best portion being on the east end around Jackfish and Trout Lakes and north as far as the second mile post. There is a flat about the middle of the block on the north as well as a block on the west side extending southeast.

TWO MILES NORTH OF LAVAL TOWNSHIP

"Two miles north of Laval this land is somewhat better, fifty per cent. of it being fairly good, as far as white clay and clay loam goes together with a quantity of muskeg. The remainder of this land is broken with rock and is useless.

TWO MILES WEST OF LAVAL TOWNSHIP

"In this part the land is rolling with flats of clay and sandy loam, and low land with a clay bottom. The remainder is very rocky and would be useless.

ECHO TOWNSHIP

"This township is somewhat better; the percentage of agricultural land being about seventy-five per cent., it consisting of white clay and clay loam and a small portion in the southwest corner all rock. In the southeast the land is rolling and broken. In the northwest there is muskeg and a small portion of it is sandy, the remainder is fairly good with some rock scattered over it.

TWO MILES WEST OF ECHO TOWNSHIP

"There is sixty-five per cent. of agricultural land and the southeast corner is very rocky, with some wet muskeg. Philcut Lake and west is good clay loam, with some small patches of rock. About one-third of the agricultural land is covered with twelve-inch black muck with a clay bottom. The extreme north is sand and gravel, the rest being rock.

LOMOND TOWNSHIP

"There is fifty per cent. of the land in this township fit for agriculture. It is situated in the southeast corner and consists of white clay and clay loam, with small flats of low land, with a surface of black earth 10 inches deep with a clay bottom. On the east side of the north line some small flats broken with rock and sand. (There is some good land north of Vermilion Lake broken with rock.)

TWO MILES WEST OF LOMOND TOWNSHIP

"About thirty per cent. of the land is arable, but is badly scattered and broken with rock and would be useless for farming. The arable land consists of small flats of white clay and clay loam; the remaining part of the township is very rocky.

VERMILION TOWNSHIP

"South of Little Vermilion Lake there is about seventy per cent. of the land fit for agriculture. The land is clay loam, with some low land and clay bottom; the remainder is rocky, with a small quantity of muskeg with a sandy bottom. North of Little Vermilion Lake the land is very rocky, there being not more than twenty-five per cent. of it fit for agricultural purposes. The flats northwest of Close Lake are fairly good. The land is mostly clay loam and the rest is very rocky.

TWO MILES WEST OF VERMILION TOWNSHIP

"The land two miles south of Little Vermilion is fairly good, there being about seventy-five per cent. of it agricultural. This is composed of rolling land, white clay and clay loam, some low land with clay bottom. The remainder of the territory is rock and swamp.

JORDAN TOWNSHIP

"There is about thirty-five per cent. of the land in this township fit for agriculture, the main portion of it is on the west side, extending north to Vermilion Lake. The remaining portion is in very small flats, with the south and eastern portion of this block very rocky

TWO MILES NORTH OF JORDAN TOWNSHIP

"The agricultural land in this portion is about twenty per cent. of the block and is of very little use, for it is in very small patches, very rocky and therefore no use for farming.

TWO MILES EAST OF JORDAN TOWNSHIP

"The agricultural land forms about twenty per cent. and is in very small patches, mostly all in the northeast corner, extending to Poplar Portage. It chiefly consists of sandy loam, the balance being flat rock with high rocky ridges."

Appendix No. 28

REPORT OF THE FORESTRY BRANCH, 1925

SIR,—The report of the work of this Branch for the year ending October 31st, 1925, is given under the sections of Forest Fire Protection, Air Operations, Reforestation and Forest Investigation.

I. FOREST FIRE PROTECTION

(1) *Legislation*

The Forest Fires Prevention Act, 1917, was further amended by adding thereto a clause empowering the reeve or deputy reeve of a township to summon assistance to fight forest fires within the township, the remuneration to be paid to fire fighters to be as fixed by a by-law passed by the municipal council of the township, or in the absence of such by-law the remuneration to be such as seems just and reasonable in the judgment of the Judge of the county or district in which the township is situate.

An amendment requiring care in setting out fire within the fire districts for any purpose whatever after the end of the close season, September 30th, seems advisable.

(2) *Organization and Personnel*

In the Western Inspectorate, under the supervision of a forest supervisor with headquarters at Port Arthur, a change was made in the boundary between the C.G.R. West and Kenora Chief Ranger Districts, the territory north of the Canadian National Railways between Favel and the Manitoba boundary being transferred from the C.G.R. West to the Kenora District. Apart from this one change the organization in the Inspectorate was the same as in 1924, there being six Chief Ranger Districts: C.G.R. West with headquarters at Sioux Lookout; C.G.R. Central with headquarters at Armstrong; Kenora with headquarters at Kenora; Rainy River with headquarters at Fort Frances; Thunder Bay with headquarters at Port Arthur, and Nipigon with headquarters at Maccdiarmid.

The Oba Inspectorate, a new Inspectorate formed by a combination of parts of the Soo and Cochrane Inspectorates, was under the direct supervision of a Fire Inspector, assisted by one Assistant Fire Inspector, with headquarters at Oba. The Inspectorate consisted of five Chief Ranger Districts: C.G.R. East with headquarters at Nakina; Hearst with headquarters at Hearst; Longlac with headquarters at Longlac; Franz with headquarters at Franz, and Oba with headquarters at Oba. The C.G.R. East and Hearst Chief Ranger Districts were previously in the Cochrane Inspectorate and the Longlac, Franz and Oba Chief Ranger Districts in the Soo Inspectorate.

The Cochrane Inspectorate, under the supervision of a Fire Inspector with headquarters at Cochrane, was divided into six Chief Ranger Districts: Kapuskasing with headquarters at Kapuskasing; Cochrane with headquarters at Cochrane; Abitibi with headquarters at Lowbush; Matheson with headquarters at Matheson; Timmins with headquarters at Timmins, and New Liskeard with headquarters at Englehart instead of at New Liskeard as formerly.

The Soo Inspectorate, under the direct supervision of a District Forester with headquarters at Sault Ste. Marie, was divided into three Chief Ranger Districts: A.C.R. with headquarters at Sand Lake; Blind River with headquarters at Blind River, and Mississagi South with headquarters at Kendigami Lake.

The Sudbury Inspectorate, with headquarters at Sudbury, was under the direct supervision of a District Forester, who was assisted by three Foresters, one of whom was in charge of the North Bay Chief Ranger District, and one in charge of the the Sudbury North and Sudbury South Chief Ranger Districts, and by two Fire Inspectors, one of whom also acted as Chief Ranger in the Foleyet East Chief Ranger District. There were eleven Chief Ranger Districts in the Inspectorate: Foleyet West with headquarters at Elsas; Foleyet East with headquarters at Gogama; Mississagi West with headquarters at Chapleau; Mississagi East with headquarters at Biscotasing; Webbwood with headquarters at Nairn; Sudbury North with headquarters at Skead; Sudbury South with headquarters at Sudbury; North Bay with headquarters at North Bay; Temagami West with headquarters at Mattagami Post; Temagami North with headquarters at Elk Lake, and Temagami East with headquarters at Temagami. The Mississagi West District was enlarged somewhat by the addition of some territory on the west from the A.C.R. and Franz Districts.

The Georgian Bay Inspectorate, with headquarters at Parry Sound, was directly supervised by a District Forester assisted by one Forestry Assistant. The Inspectorate was divided into two Chief Ranger Districts instead of three as in the year previous: Georgian Bay West with headquarters at Parry Sound, and Georgian Bay East with headquarters at Powassan.

The Algonquin Inspectorate was under the direct supervision of a District Forester assisted by a Forestry Assistant, the headquarters being at Pembroke. There were two Chief Ranger Districts, Algonquin North with headquarters at Pembroke, and Algonquin South with headquarters at Brulé Lake.

The Trent Inspectorate, with headquarters at Tweed, was directly supervised by a District Forester assisted by a Forestry Assistant. There was one Chief Ranger District, Trent, with headquarters at Dacre.

The total field supervisory staff for the eight inspectorates, which were divided into thirty-six Chief Ranger Districts, consisted of eleven technical foresters, one Forest Supervisor, four Fire Inspectors, one Assistant Fire Inspector, thirty-six Chief Rangers and ninety-one Deputy Chief Rangers. This allowed direct supervision of one Chief or Deputy Chief Ranger to an average of every six rangers.

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 91; May, 627; June, 840; July, 849; August, 844; September, 726; October, 96. The largest number of men on duty at any one time, including 127 Chief and Deputy Chief Rangers, was 853.

Including the Chief and Deputy Chief Rangers there were 24 men on duty on the 1st day of April. By the 15th of the month the number had increased to 62, and by the 1st of May to 264. On the 15th of May the total number was 648; on the 1st of June, 822; on the 15th of June, 842; on the 1st of July, 847; on the 15th of July, 848; on the 1st of August, 845; on the 15th of August, 841; on the first of September, 835; on the 15th of September, 806. During the latter part of September it was possible to discontinue the patrols in most of the outlying districts, so that by the end of the month the total number of men on duty had been reduced to 377. There were 82 men on duty on October 15th and 25 at the end of the month.

(3) *Expenditures*

The total expenditure for the year was \$1,261,309.74, less \$80,000 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Protection at \$1,181,309.74. The amount of fire tax collected for the year was \$266,488.13.

CLASSIFICATION OF EXPENDITURE

Item	1925	1924	1923	1922	1921	1920	1919
Pay roll.....	\$615,811 09	\$480,481 98	\$535,810 35	\$417,023 88	\$433,463 02	\$398,919 61	\$405,212 30
Equipment.....	130,353 42	139,894 00	127,186 92	44,504 49	28,384 40	22,287 83	22,899 02
Expendable equipment.....	4,338 76	4,646 75	5,869 55	3,048 16	19,505 86	16,589 99	13,903 06
Travel (inspection).....	33,649 18	32,797 35	31,436 73	23,088 33	21,034 95	17,495 93	15,826 37
Improvement work.....	225,723 85	61,427 30	54,876 42	40,999 77	3,621 06	1,591 01	4,765 35
Extra fire fighting.....	67,023 32	16,450 78	143,508 13	40,969 67	65,267 79	41,491 24	58,863 92
Express, postage, etc.....	39,472 70	33,818 69	28,083 20	9,561 17	7,926 65	5,401 02	5,046 47
Air operations.....			86,404 71	23,437 84			
Repairs, upkeep, etc.....	98,520 56	28,877 18	7,419 24	17,670 45			
Miscellany.....	11,964 07	8,921 53	15,328 44	23,598 77	31,331 01	2,331 08	5,955 02
Gasoline and oil.....	26,924 17	40,527 77	7,485 69				
Rent.....	7,528 62	7,206 91	5,251 41				
Brush-burning.....			229 00				
Advertising.....			14,066 45				
Totals.....	*\$1,261,309 74	\$855,050 24	\$1,062,956 24	\$643,902 63	\$610,534 74	\$506,107 71	\$528,071 51

*Of this total \$80,000.00 was transferred to a charge against Forest Ranging to cover air operations in connection with that work

CLASSIFICATION OF FOREST FIRES

BY SIZE

[illegible]

CLASSIFICATION OF BURNED-OVER AREA
By Month

Inspectorate	April		May		June		July		August		September		October		Totals
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	
Western.....	3	.....	63,065	97.1	480	0.7	958	1.5	362	0.6	54	0.1	.....	.....	64,922
Oba.....	.....	.....	1	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Cochrane.....	.....	.....	87	56.9	1	0.6	.....	.....	60	39.2	5	3.3	.....	.....	153
Soo.....	5,406	12.9	5,839	14.0	21	0.1	6	.....	30,345	72.5	217	0.5	.....	.....	41,834
Sudbury.....	814	2.2	1,532	4.0	44	0.1	38	0.1	35,594	92.8	311	0.8	15	.....	38,348
Georgian Bay.....	83	0.2	1,001	2.9	43	0.1	13	.....	33,800	96.2	207	0.6	.....	.....	35,147
Algonquin.....	1,149	28.5	1,210	30.0	82	2.0	15	0.4	1,475	36.7	98	2.4	.....	.....	4,029
Trent.....	1,395	27.3	1,946	38.1	66	1.3	.....	.....	1,685	33.0	17	0.3	.....	.....	5,109
Totals.....	8,850	4.7	74,681	39.4	737	0.4	1,030	0.5	103,321	54.5	909	0.5	15	.....	189,543

CLASSIFICATION OF BURNED-OVER AREA
BY ORIGIN

Inspectorate	Settlers		Campers		Railways		Lightning		Logging operations		Miscellany		Unknown		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Western.....	10,277	15.8	7,682	11.8	72	0.1	626	1.0	37	0.1	851	1.3	45,377	69.9	64,922	
Oba.....	65	42.5											1	100.0	1	
Cochrane.....	13,235	31.6	18,188	43.5	595	1.4	628	1.5	3,039	7.3	51	33.3	37	24.2		153
Soo.....	16,027	41.8	3,812	9.9	4,631	12.1	550	1.4	1,453	3.8	542	1.3	5,607	13.4	41,834	
Sudbury.....	1,711	4.9	10,719	30.5	3,096	8.8	5,710	16.2	68	0.2	2,306	6.0	9,569	25.0	38,348	
Georgian Bay.....	38	0.9	473	11.7	874	21.7	-256	6.5	707	17.5	4,369	12.4	9,474	27.0	35,147	
Algonquin.....	881	17.2	1,827	35.8	47	0.9	25	0.5			1,390	34.5	291	7.2	4,029	
Trent.....											199	3.9	2,130	41.7	5,109	
Totals.....	42,234	22.3	42,701	22.5	9,315	4.9	7,795	4.1	5,304	2.8	9,708	5.1	72,486	38.3	189,543	

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS

RAILWAY	1925	1924	1923	1922	1921
Canadian National Railways (exclusive of northern line).....	2.4	3.3	6.2	*3.2	*3.7
Canadian Pacific Railway.....	2.4	2.0	5.3	2.7	3.9
Canadian National Railways (northern trans-continental line only).....	0.3	0.5	2.0	2.4	1.8
Temiskaming and Northern Ontario Railway...	1.1	3.7	7.3	7.3	6.3
Algoma Eastern Railway.....	9.4	8.2	1.1	4.5	5.9
Algoma Central and Hudson Bay Railway.....	6.1	4.5	3.0	4.2	0.6
Nipissing Central Railway.....	7.7				
Miscellaneous Private Railways.....	2.4	2.7	4.9	3.3	3.7

*Former C.N.R. and G.T.R. figures combined.

[illegible]

*Former C.N.R. and G.T.R. figures combined.

CLASSIFICATION OF BURNED-OVER AREA

[illegible]

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1925

INSPECTORATE	Number of fires	Timber land, mainly coniferous, i.e., softwood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
Western.....	146	3,320	617	5,787	11,043	7,294	4,926	30,825	1,110	64,922
Cochrane.....	12	.....	1	84	30	5	.....	33	.....	153
Oba.....	10	.....	.....	.....	.....	.....	.....	.....	1	1
Soo.....	182	674	4,687	1,411	5,133	1,616	2,753	14,556	11,004	41,834
Sudbury.....	431	574	19	3,584	848	6,762	11,400	11,908	3,253	38,348
Georgian Bay.....	133	51	11	1,787	2,553	5,669	13,463	8,216	3,397	35,147
Algonquin.....	108	.....	16	763	256	661	538	1,555	240	4,029
Trent.....	127	15	204	139	1,725	384	1,084	1,321	237	5,109
Total.....	1,149	4,634	5,555	13,555	21,588	22,391	34,164	68,414	19,242	189,543
1924 totals.....	851	24,067	6,593	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 ".....	1,343	567,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
1922 ".....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
1921 ".....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 ".....	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 ".....	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 ".....	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 ".....	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

CLASSIFICATION OF LAND BURNED OVER, 1925

Inspectorate	Fires burning on one class of land only						Fires burning on both Crown and private land										Totals	
	Crown land			Private land			Originating on Crown land					Originating on private land						
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Crown land area in acres	Per cent.	Private land area in acres	Per cent.	No. of fires	Crown land area in acres	Per cent.	Private land area in acres	Per cent.	No. of fires	Area in acres
Western.....	79	27,014	42	55	12,654	19	3	5,350	8	1,600	3	9	10,167	16	12	8,137	146	64,922
Oba.....	6	1	100	4	122	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	1
Cochrane.....	4	31	20	8	122	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	153
Soo.....	68	14,061	34	107	5,520	13	5	9,801	23	302	1	2	3,075	7	22	9,075	182	41,834
Sudbury.....	177	27,304	71	241	7,035	18	3	61	.....	15	.....	10	2,509	7	4	1,424	431	38,348
Georgian Bay.....	44	13,061	37	75	3,294	9	4	8,105	23	780	2	10	4,395	13	16	5,512	133	35,147
Algonquin.....	66	2,822	70	36	272	7	2	585	14	220	6	4	77	2	1	53	108	4,029
Trent.....	57	3,385	66	60	589	12	6	466	9	287	6	4	211	4	3	171	127	5,109
Totals.....	501	87,679	.....	586	29,486	.....	23	24,368	.....	3,204	.....	39	20,434	.....	.....	24,372	1,149	189,543

(5) *Permits*

The number of burning permits issued during the season was considerably in excess of the number for the previous year, as was to be expected, the season of 1924 being so wet in some districts as to make slash burning impossible. The increase in the number of new settlers has a direct influence upon the number of permits issued, but the greatest influence is probably through the efforts of the field staff in educating the settlers to the use and benefits of the system.

While the number of permits issued and the area covered by these permits was greater than in the previous season, there was actually less burning done because of the extremely wet weather in the Clay Belt. Hundreds of permits issued were never used and there are now slash accumulations of two years to be burned at the first favourable opportunity. Unless this burning is carried out with the utmost caution it will be accompanied by the gravest of fire hazards.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1925	1924	1923	1922	1921	1920	1919
C.G.R. West.....	99	70	28	23	.....	1	8
C.G.R. Central.....		1					1
Kenora.....	3	128	362	180	128	53	68
Rainy River.....	19	16	216	39	3	5	8
Thunder Bay.....	235	100	139	59	.....	.....	.....
Nipigon.....	.....	.....	.....	.....	.....	.....	.....
C.G.R. East.....	95	36	18				
Hearst.....	1,656	1,011	1,000	1,774	1,082	756	702
Longlac.....			50				
Oba.....	11	16					
Franz.....	10						
Kapusking.....	1,187	668	531	587	209		
Cochrane.....	2,486	1,815	1,480	2,497	1,503	1,982	2,275
Abitibi.....	157	2	2	61	2	8	5
Matheson.....	1,515	1,275	1,122	2,126	1,599	1,887	1,691
Timmins.....	1,212	580	406	754	407	193	199
New Liskeard.....	637	408	361	.....	916	1,169	1,557
A.C.R.....	82	18	10				
Blind River.....	126	100	36	6			
Mississagi South.....							
Foley West.....	3	34	11				
Foley East.....	169	102	1			25	36
Mississagi West.....	20	15	1			5	
Mississagi East.....	12	9					
Webbwood.....	162	119	25	16	21		
Sudbury North.....	36	173					
Sudbury South.....	411	149	36				
North Bay.....	691	360	61	46	42	31	37
Temagami West.....	19						
Temagami North.....	253	200		387	24	10	19
Temagami East.....	174	86	11	48	15	14	1
Georgian Bay West.....	100						
Georgian Bay East.....	159					1	
Algonquin North.....	33	29					
Algonquin South.....	84	58			3	4	7
Trent.....	106	24			12	10	21
Totals.....	11,962	7,602	5,907	8,603	5,966	6,154	6,635

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1925	1924	1923	1922	1921	1920	1919
April.....	451	127					
May.....	2,185	849	2,131	1,992	1,154	1,003	1,536
June.....	2,273	3,614	711	3,034	3,085	2,011	2,786
July.....	2,172	1,388	1,314	1,502	364	891	496
August.....	2,484	1,093	1,077	1,580	1,329	1,620	1,475
September.....	2,367	528	566	495	34	629	342
October.....	30	3	108				
Totals.....	11,962	7,602	5,907	8,603	5,966	6,154	6,635

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage Covered by Permits						
	1925	1924	1923	1922	1921	1920	1919
C.G.R. West.....	416	215	95	26		1	27
C.G.R. Central.....		1					
Kenora.....	2	325	35,006	624	637	284	297
Rainy River.....	174	57	1,374	331	18	23	89
Thunder Bay.....	1,029	463	1,081	1,251			
Nipigon.....							
C.G.R. East.....	28	25	53				
Hearst.....	3,721	2,311	2,335	3,837	2,124	1,478	1,379
Longlac.....			64				
Oba.....	1	60					
Franz.....	1						
Kapuskasing.....	4,222	2,351	2,126	2,017	1,731		
Cochrane.....	4,462	4,010	4,348	8,108	4,652	4,984	5,437
Abitibi.....	426		1	968	13	72	20
Matheson.....	5,211	4,573	5,027	7,613	5,442	5,427	4,760
Timmins.....	2,064	1,421	918	2,591	988	424	925
New Liskeard.....	2,154	1,345	1,160		7,726	9,768	13,521
A.C.R.....	1,257	100	36				
Blind River.....	1,119	619	294	67			
Mississagi South.....							
Foleyet West.....	25	2,959	52				
Foleyet East.....	3,152	3,402	5			128	106
Mississagi West.....	2,555	81	408			3	
Mississagi East.....	4,741	2					
Webbwood.....	2,768	2,009	81	66	101		
Sudbury North.....	293	425					
Sudbury South.....	1,957	6,900	187				
North Bay.....	1,384	518	92	103	74	104	64
Temagami West.....	6						
Temagami North.....	1,197	303		1,657	129	18	111
Temagami East.....	819	172	41	196	25	25	
Georgian Bay West.....	742						
Georgian Bay East.....	418					2	
Algonquin North.....	377	719					
Algonquin South.....	121	599			5	11	17
Trent.....	326	60			13	15	37
Totals.....	47,168	36,025	54,784	29,455	23,678	22,767	26,790

(6) Equipment

Of the major equipment purchased the fifty portable fire fighting units and 143,200 feet of hose for use with these units were the most important items. This addition brought the total number of units up to 189 with 397,860 feet of hose.

Each succeeding season further demonstrates the advantages of the use of mechanical equipment in combating forest fires, providing the equipment is in charge of competent operators. By the use of the portable fire fighting units or pumps fires can not only be kept under control but can be completely extinguished, thereby providing an economy not alone in timber values but in labour as well.

Probably the most important auxiliary to the power pumps is the portable hand or force pump, 239 of which were purchased bringing the total up to 300. These hand pumps are particularly useful to the individual ranger in extinguishing small fires and in "mopping up" on the larger fires.

MAJOR EQUIPMENT PURCHASED AND IN USE

Inspectorate	Fire fighting units		Fire fighting hose (feet)		Portable hand pumps		Tents		Blankets (pairs)		Canoes		Small motor boats		Launches		Auto trucks		Railway motor cars		Vehicles	
	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use	Purchased 1925	Total in use
Western.....	8	35	26,200	66,200	3	3	59	358½	56	56	1	1	9	4	11	4	11	4	4	11	4	
Oba.....	5	23	13,000	58,010	6	10	112	635	57	57	1	1	1	1	18	8	18	8	8	18	8	
Cochrane.....	5	18	12,000	34,850	...	...	79	429	6	63	1	1	4	2	38	4	38	4	4	38	4
Soo.....	2	13	5,000	25,200	...	5	74	432	32	32	...	...	...	1	9	2	9	2	2	9	2
Sudbury.....	23	69	71,000	152,800	126	144	30	232	1,476	224	224	7	7	...	8	5	29	6	6	29	6	
Georgian Bay.....	5	15	8,000	28,900	48	54	42	42	245½	40	40	1	1	1	2	1	4	1	3	4	1	
Algonquin.....	...	10	...	18,900	16	42	...	55	366	45	45	1	1	...	1	5	5	2	3	5	2	
Trent.....	2	6	8,000	13,000	40	42	...	18	90	22	22	...	...	...	...	...	1	1	1	1	1
Totals.....	50	189	143,200	397,860	239	300	33	671	4,032	539	20	1	12	...	25	14	32	1	28	2	115	

(7) Locomotive Inspection

Two men were employed throughout the season on the inspection of fire protective appliances on locomotives operating on railways under the jurisdiction of the Dominion Board of Railway Commissioners and on logging railways within the Province.

A total of forty round houses and gravel pits were visited periodically and 1,856 locomotive inspections made covering 773 locomotives. In addition, thirty-three inspections were made on locomotives operated by lumber companies, bringing the total number of inspections up to 1,889. The percentage of locomotives found defective and operating on lines under the jurisdiction of the Board of Railway Commissioners was 0.6 per cent., a decrease from 32.1 per cent. in 1918.

LOCOMOTIVE INSPECTION, 1925

RAILWAY	Number Inspected					Total No. Locomotives	Total Number Inspections							Inspections Showing Defects	Percentage Defective						
	Times						1925	1924	1923	1922	1921	1920	1919		1925	1924	1923	1922	1921	1920	1919
	1	2	3	4	5 and over																
C.P.R.....	151	75	44	52	31	353	799	851	860	815	723	660	499	4	0.5	1.9	2.3	5.8	8.3	18.8	29.9
C.N.R.....	161	64	64	41	65	395	988	1,001	856	*681	*740	*577	*472	5	0.5	1.5	2.7	*3.5	*5.7	*6.4	*13.3
A.C. & H.B.R.	4	6	2	2	3	17	45	45	29	45	35	25	23	.....	.....	.....	.....	2.2	22.8	12.0	13.0
A.E.R.....	1	2	1	2	1	7	21	15	15	22	28	26	18	1	4.8	.....	6.6	.....	21.4	46.1	16.7
N.C.R.....	.....	.....	1	.....	.....	1	3	8	.....	.....	.....	.....	.....	1	33.3	.....	.....	.....	.....	.....	.....
Totals.....	317	147	112	97	100	773	1,856	1,920	1,760	1,563	1,526	1,288	1,012	11	0.6	1.6	2.5	4.6	8.3	12.8	21.8

Average cost per inspection: 1925, \$1.78; 1924, \$1.80; 1923, \$1.88; 1922, \$1.61; 1921, \$1.70; 1920, \$1.86; 1919, \$2.07.

*Former C.N.R. and G.T.R. figures combined.

(8) Improvements

The policy of constructing suitable and permanent buildings for the housing of equipment and field personnel was continued. A number of wooden lookout towers were erected and one steel tower. Approximately 106 miles of permanent telephone line was built and 190 miles of temporary line was used. The cleaning out of old and the construction of new trails and portages totalled over 1,500 miles but was largely confined to the three southern inspectorates.

SUMMARY OF PERMANENT IMPROVEMENTS

Inspectorate	Cabins		Store houses		Boat houses		Combined Store houses and boat houses, etc.		Bunk houses		Offices		Garages		Other build-ings		Hose towers		Wooden lookout towers		Steel lookout towers		Permanent telephone lines (miles)		Tem-orary tele-phone lines (miles)
	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	Built 1925	Total	
Western.....	3	50		3		4	1	1	2					4					2	19				176.0	17.0
Oba.....	2	27		4		1	2	1	1					4					1	14			5.0	18.5	
Cochrane.....		28		4		2	1							5						17				11.0	
Soo.....	2	7		4										1						7			1.0	1.0	
Sudbury.....	6	68		8		1	3	1	6					5					6	28			27.2	214.4	48.2
Georgian Bay.....	1	8		1		1	4		1					3					1	2			3.5	51.0	44.0
Algonquin.....	4	29		3		2								2					5	32			60.5	349.5	15.0
Trent.....	2	10				1	1							1					1	6			9.0	59.0	66.0
Totals.....	20	227	2	27	3	12	3	20	1	11		4	1	22	3	10	2	8	22	115	1	32	106.2	880.4	190.2

II. AIR OPERATIONS

During the past season the Air Service carried on flying operations in connection with various phases of forestry work. The following is a summary of the detailed report of Mr. W. R. Maxwell, the Director of the Air Service:—

“The operating season of 1925 extended over a period of 206 days, during which time the Service flew a total of 2,738.37 hours.

No. of machine-days, machines employed.....	763 days.
No. of machine-days, machines available and idle.....	1,737 “
No. of clear weather machine-days, machines available and idle.....	932 “
No. of machine-days, machines available but weather unfit for flying.....	805 “
Machine-days (1 machine for 1 day) supplied by the Service during 1925.....	2,500 “
No. of times 1 machine unserviceable for 1 day.....	229
No. of times machine unable to complete patrol on account of machine trouble.....	15
No. of times Service unable to complete patrol.....	9
No. of patrols requisitioned.....	555
Machine patrol efficiency.....	97.3%
Service patrol efficiency.....	98.4%
No. of permanent stations operated.....	10
No. of temporary stations established.....	21

Note:

- (a) In many cases the requisitions cover flying operations of from two to four days.
- (b) No instructional flights, cross country to or from operating bases, remote transportation, demonstration or operations in Red Lake, Fort Cologne and James Bay District Treaty transportation are included in the above requisitions. These flights were carried out on schedule.

Total Load:

Total weight carried by the Service during 1925.....	2,364,275 lbs.
Average total load carried per machine for season.....	139,070 “
Average total load carried per flight.....	1,848 “

Operating Load Carried:

Total operating load carried season 1925.....	1,810,735 “
Average total operating load carried per machine.....	111,537 “
Average operating load carried per flight.....	1,432 “

Effective or Pay Load:

Total effective load carried season 1925.....	553,540 “
Average total effective load carried per machine.....	34,239 “
Average effective load carried per flight.....	427 “

Passengers Carried:

Total number of passengers carried 1925.....	1,214
Average number of passengers carried per flight.....	0.9
Average number of passengers carried per machine for the season.....	71
Number of miles passengers were carried season 1925..	156,606
Total number of passengers and personnel carried 1925	3,938

Flights:

Total number of flights carried out 1925.....	1,312
Average duration of flights.....	2.06 hrs.
Average number of miles flown per flight.....	129
Average altitude flown 1925.....	1,990
Average number of flights per day.....	6.3
Average number of miles flown season 1925.....	165,835
Area covered on fire detection.....	2,259,725 sq. mls. or 1,446,224,000 acres.

Note.—In comparing the area covered with the operating season of 1924, mention may be made that less requisitions for fire patrol were made in the season of 1925 than in the season of 1924, and a greater number of requisitions for suppression were made in 1925 than in 1924.

Hours Flown on Various Phases of Flying Operation, 1925:

Fire detection.....	1,440.40 hours.	52.5%	of total hours.
Transportation, fire suppression...	155.45	5.7%	" "
Sketching.....	244.42	8.9%	" "
Photography.....	53.15	1.9%	" "
Transportation, remote.....	197.40	7.2%	" "
Instructions to observers.....	26.50	.09%	" "
Instruction to pilots.....	55.48	2%	" "
Forced landings.....	36.04	1.3%	" "
Service transportation.....	62.05	2.2%	" "
Ferrying.....	330.41	12%	" "
Demonstration.....	87.40	3.2%	" "
Test.....	47.27	1.7%	" "

Detection:

As in the previous years detection was the largest single item in the 1925 operating programme and called for 1,440.40 hours flying or 52.5 per cent. of the total year's flying. The eastern section contributed 1,804.56 hours and the western section 932.49 hours. During the month of August the period in the eastern section was particularly dry and the fire hazard extremely grave. All aircraft were kept busy from dawn until dark, patrolling and carrying fire fighting equipment, crews and food, and made as many as eight flights in one day. During the month of August 922.49 hours were flown, which was 34.67 per cent. of the total hours for the 1925 flying operations. It is worthy of mention to note that the total flying in the month of August in the eastern section was 552.55 hours or 46.42 per cent. of the total flying for the season 1925. In other words the operating personnel in the eastern section, during the month of August, practically flew one-half of the total amount of flying done in this area for the entire season.

Suppression:

The operation reports for the season 1925 indicated that greater advantage has been taken of the capacity of aircraft to participate in fire suppression work. The comparative figures for the two years are as follows:—

In 1924 the total of 42.52 hours was flown.

In 1925 the total of 155.45 hours was flown.

This in the transportation of fire fighters and fire fighting equipment.

Some very heavy loads were carried, and in August it was found necessary to transfer a machine from Remi Lake, where the fire hazard was low, to Sudbury. The machine in question was used for fire suppression exclusively.

During the month of August at Sudbury, twenty-three fire suppression flights were carried out totalling 52.10 hours. The total weight of fire fighting equipment carried was 10,583 pounds and mileage flown 3,130 miles.

This flying was not entirely confined to the transportation of fire fighters and equipment to remote newly detected fires, but also for the rapid transit of supplies, etc., to the crews fighting these fires. Quoting: "An excellent example of the effectiveness of aircraft in dealing with a certain type of fire was afforded on August 1st, at Randolph Lake, near Armstrong on the Canadian National Railway, reference flight report O.B.-18."

On detecting this fire, the machine landed immediately. Investigation showed that the crew could not cope with the fire, that the proportions were such that it would need the proper fire fighting equipment. The machine at once took off and flew to Macdiarmid, where two fire rangers, pumps and hose were picked up and flown back to the fire. As a result of the combined efforts of the crew, consisting of the observer, pilot and air engineer, and two fire rangers, the fire was attacked and pronounced out at 19 o'clock, 5 hours and 50 minutes from the time it was first detected. In view of the fact that this fire was over seven miles from the nearest fire fighting equipment, in a country which was decidedly difficult to travel, and burning at the edge of an excellent stand of timber, the value of the saving of time afforded by the use of aircraft on suppression may be appreciated. The value of such flights is practically inestimable.

Remote Transportation:

Useful flying should be steadily encouraged. Fast and safe transportation to areas at present remote and inaccessible, save by long and arduous journeys, was accomplished in the operating season of 1925. The following transportation flights quoted: The payment of Indian Treaty for the Federal Government which included the remote Hudson Bay and the French Company posts of the James Bay District, as far north as Attawapiskat on James Bay; the transportation of Hudson Bay Company district staff officers from Moose Factory to Remi Lake and the return flight with the district manager and his family from Remi Lake to Moose Factory; the transportation of Doctor Cockburn from Remi Lake to Moose Factory; the transportation of prospectors and mining equipment supplies to the Red Lake gold rush in the late season of 1925; the successful flights in connection with the James D. Lacey sketching programme in the late season of 1925 on the Ottawa River; the flights participated in by Hydro-Electric engineers over the Nipigon watershed; the flight of remote transportation participated in by the Hon. James Lyons in connection with the inspection of remote operating stations of the Provincial Air Service in conjunction with flights of Indian Treaty Transportation Flight and other flights which will be dealt with in greater detail in the annual report.

Demonstration Flights:

During the operating season of 1925 demonstration flights were carried out in various areas of the Province and a valuable service rendered in this respect.

In Conclusion:

An endeavour has been made in the foregoing to submit very briefly the statistical statement of the work performed during the operating season of 1925 by the Provincial Air Service. A very gratifying feature of the season just quoted is the closer relationship and co-operation existing between the ground and air forces. There is an active spirit of goodwill between these two branches. This spirit, more than anything else, will give the Service a solid foundation, a record of useful service and a quicker road to public confidence.

It remains to pay a tribute to the energy and devotion of the Provincial Air Service personnel, both operating and ground staff. Their work was carried out faithfully and efficiently and often under very severe weather conditions. No government, state, or commercial enterprise has been better served by its flying personnel.

In the final analysis, the successful operation of an air force depends not so much upon equipment and capital as it does upon securing the loyal co-operation of every member of the service staff."

III. REFORESTATION

Provincial Forest Stations:

St. Williams (Norfolk County).
Orono (Durham County).
Midhurst (Simcoe County).

Provincial Transplant Nurseries:

Sand Banks (Prince Edward County).
Kemptville (Grenville County).

County Forests:

Hendrie (Simcoe County).
Vivian (York County).
Northumberland (Northumberland and Durham Counties).
Uxbridge (Ontario County).

*Private Forests.**Tree Planting:*

Private planting.
Demonstration Plots.

*Seed Collecting.**Summary of Nursery Stock.**Summary of Tree Distribution.***ST. WILLIAMS:**

During the late fall of 1924 and the winter months of 1925 only the staff, comprising foremen, clerk and teamsters, fourteen men in all, were retained on the pay roll.

The practice of spring seeding has gradually given way to that of fall sowing, until only such as elm, and soft maple, and coniferous seed of one or another species, which was unprocured until too late for handling during the fall, of necessity had to be spring sown.

(a) *Coniferous Seed Sown:*

SPECIES:	No of Beds.
White Pine.....	270
Red Pine.....	400
Scotch Pine.....	90
Jack Pine.....	35
White Spruce.....	48
White Spruce.....	13
Norway Spruce.....	18
White Cedar.....	14
Red Cedar.....	10
Hemlock.....	7
European Larch.....	40
Total.....	945

(b) *Hardwood Seed Sown:*

SPECIES:	Total Amount of Seed Sown.	
	Bushels.	Pounds.
Silver Maple.....	43	...
Red Maple.....	4	...
Elm.....	3½	...
Hard Maple.....	...	35
Manitoba Maple.....	...	8
Norway Maple.....	...	10
White Ash.....	...	173
White Birch.....	...	10
Yellow Birch.....	...	21
Basswood.....	...	100
Black Cherry.....	...	400
Red Oak.....	24	...
Chestnut.....	3½	...
Walnut.....	354	...
Totals.....	432	757

Nursery Lines: A new record as regards lining out of transplants was made during the spring of 1925. Over three and one-half millions of trees were transferred from seed beds to the nursery lines.

TRANSPLANTS SHIPPED TO OTHER PROVINCIAL FOREST STATIONS

PLACE	1-0 Scotch Pine	1-1 Red Pine	1-0 Jack Pine	2-0 White Spruce	2-0 Norway Spruce	2-0 European Larch	2-0 White Cedar	Grand Total
Orono.....	525,000	15,000	124,700	127,000	65,000	50,000	50,000	956,700
Midhurst..	432,000	...	40,000	...	...	...	...	472,000
Totals...	957,000	15,000	164,700	127,000	65,000	50,000	50,000	1,428,700

Fertilizers: On account of our greatly increased nursery stock and a rather curtailed acreage suitable for nursery lines, our work is becoming more intensive.

As a result of this, the productive area demands heavy annual fertilizing in order that a high state of soil fertility be maintained.

Both animal and mineral fertilizers are used, the former to retain and, if possible, to increase humus in the soil, while the latter is applied to function rather as a corrective agent toward supplementing mineral deficiencies as well as offsetting acidity, and other unhealthy conditions which exist.

FERTILIZERS APPLIED DURING 1925

ANIMAL		MINERAL	
Manure (Tons)	Dried Blood (Lbs.)	Lime (Tons)	Acid Phosphate (Lbs.)
1,017½	2,435	43	11,820

SEED IN STORAGE

SPECIES:	Pounds.
White Pine.....	425
Red Pine.....	1,641
Scotch Pine.....	82
Jack Pine.....	20
White Spruce.....	21
Norway Spruce.....	27
White Cedar.....	34
Red Cedar.....	12
Balsam.....	98
Hemlock.....	25
Tamarack.....	4
Total.....	2,389

Additions to Property: With the exception of a small coal house, no new buildings were erected.

One feature of importance, as an improvement, was the establishment of a park and picnic grounds. In the community there is a decided lack of such places of recreation, and it was felt that the creating of some place where picnics might be held would reflect creditably upon the institution.

Three miles of telephone line was constructed to facilitate communication with a patrol man who lives at the northwest extremity of the property.

Roads: The policy of maintaining woods roads in a good condition was adhered to. Coppice growth and herbage was scythed, and all inflammable material bordering roadways was removed. One and one-half miles of new roads were constructed to serve the dual purpose of fire protection, and in the capacity of facilitating access to newly established plantations. Two new fire lines sixteen feet wide totalling seven miles in length were cut out to augment our intensive programme of fire protection.

Fencing: One hundred and eighty rods of nine-strand wire fence was constructed. Bordering the property on the east, running north along the town line, and west along the sixth concession road for a distance of two lots, this fence effectively excludes all live stock from our newer plantations.

Silviculture: Eighty acres of woodland, composed principally of scrub oak, were cut over in preparation for our new 1926 plantations. On this area all diseased, ill-formed, or otherwise undesirable trees were removed and converted into logs and firewood. All brush was burned.

Eight new plantations were established during the fall of 1925, the whole reclaiming an area of approximately seventy acres. Each of these eight plantations are of individual interest, since very detailed data was recorded as to costs of preparing planting sites, planting material, the actual planting operation, and every other pertinent information which was thought might be of value. Although each plantation differed from the other, each was set out with the tentative object of obtaining first-hand intelligence as to what species, mixtures, and associations are best suited to certain conditions of site.

Protection (Disease and Insects): The results of combating disease, and insect ravages, would seem to justify the consistent and persistent efforts which have been exerted toward this end.

We are again happy to report that no evidence of white pine blister rust has been found. Notwithstanding this, however, the work of eradicating members of the genus *Ribes* is being carried on with utmost thoroughness.

Endothia parasitica (chestnut blight) has appeared in southwestern Ontario, and is to be found on the Forest Station. Several trees have been observed to be affected, and have been cut down and burned. To date, however, there seems to be little, if any, method of combating this disease which has proved so disastrous to chestnuts of the New England States.

NURSERY STOCK ON HAND

CONIFERS:

White Pine.....	4,300,000
Red Pine.....	5,270,000
Scotch Pine.....	2,330,000
Jack Pine.....	1,635,000
White Spruce.....	1,885,000
Norway Spruce.....	1,328,000
White Cedar.....	640,000
Red Cedar.....	4,500
Balsam.....	90,000
Hemlock.....	80,000
European Larch.....	145,000

Total.....	17,707,500
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HARDWOODS:

White Ash.....	110,000
White Elm.....	100,000
Hard Maple.....	53,000
Sweet Chestnut.....	5,000
Black Cherry.....	7,000
Black Locust.....	14,000
Honey Locust.....	6,000
Silver Maple.....	150,000
Manitoba Maple.....	2,500
Rooted Poplar.....	3,000
Poplar Cuttings.....	250,000
Willow Cuttings.....	50,000
Black Walnut.....	25,000
White Walnut.....	6,000

Total.....	781,500
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Grand Total.....	18,488,000
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ORONO:

Seeding: The lack of an irrigation system has proved a serious handicap in the production of coniferous seedlings. This lack of watering facilities is not only a serious drawback in the combating of drouth conditions, but also opens our seed beds to the attack of "damping off" fungi. Since we are unable to

replace lost soil moisture it is impossible to retain an optimum moisture content in the soil during dry seasons and similarly we are unable to dry out the soil to the proper degree when "damping off" threatens the seedlings, as this leaves the seed beds entirely dependent upon a rainfall which must follow almost immediately to be of any value.

While the lack of irrigation facilities has proved a severe handicap, notably with red pine which is regarded as one of the most important species for reforestation purposes, the success attained with certain other species, including Scotch and jack pines, white cedar and white spruce, has been so encouraging as to induce an expansion in coniferous seed-bed operations which would otherwise be unwarranted.

In the spring sixty beds were sown which were largely experimental. In all three species the most striking difference was the much better production obtained from neighbouring beds sown in the preceding fall.

FALL SOWING OF CONIFEROUS BEDS

SPECIES:	No. of Beds Sown.
Red Cedar.....	15
White Cedar.....	18
Jack Pine.....	33
Red Pine.....	70
Scotch Pine.....	45
White Pine.....	78
White Spruce.....	29
Total.....	288

SOWING OF HARDWOOD SEED

SPECIES:	Total Bushels.
White Ash.....	5
Basswood.....	2
Black Cherry.....	2
White Elm.....	2
Red Maple.....	4
Silver Maple.....	12
Red Oak.....	10
Walnuts.....	16
Walnuts.....	50
Total.....	103

Fertilizers: Green manures were resorted to extensively, crops of fall rye and buckwheat being ploughed under on all land not actually occupied by seed beds or transplant lines. In addition, the following fertilizers, other than green manures, were applied during the year.

ANIMAL		MINERAL		
Manure (Tons)	Dried Blood (Lbs.)	Acid Phosphate (Lbs.)	Sulphate of Ammonia (Lbs.)	Muriate of Potash (Lbs.)
57	200	500	175	200

Roads: Main nursery roads were widened from twelve to sixteen feet and the necessary additional gravel applied. Several concrete culverts were constructed at strategic points on these roads. In co-operation with the Clark Township Council, the approach to the nursery from the village was greatly improved, a sharp curve from the county-provincial road being greatly reduced and the gradient lessened.

Demonstration Plantations: Eight acres of hillside were planted with conifers and four acres of rather poorly drained land at the northwest corner of the property were planted to hardwoods.

Buildings: One very necessary building was erected during the year, to be used as an implement shed, tool house and work shop. This building is 120 feet by 30 feet, of board and batten construction, with a hip roof shingled with wooden shingles, and with concrete floors.

The original barn on the property was re-sheeted with boards and battens at the same time.

Lands: An area of 200 acres, comprising Lot 22, Concession 1, Manvers Township, Durham County, was taken over and brought under the jurisdiction of the forest station. This is an area of rolling sand land, from which approximately 1,500,000 F.B.M. of white pine and red oak have just been harvested. An excellent reproduction of red and white pine, red oak and birch is in evidence at present.

Publicity: The number of township agricultural fairs visited with our exhibit was increased from two in 1924 to six this year. Excellent results were obtained in every case, many prospective planters and present woodlot owners being personally interviewed at each fair.

Surveys: A topographic map of the nursery was completed during the year. The boundaries of the property were chained while the levels were obtained with a hand level.

STOCK ON HAND

HARDWOODS		
SPECIES:		Totals
White Ash.....		90,000
White Elm.....		145,000
Silver Maple.....		455,000
Walnut.....		2,000
CUTTINGS:		
Carolina Poplar.....		25,000
White Willow.....		30,000
Total.....		747,000
CONIFERS		
Balsam.....		25,000
White Cedar.....		218,000
European Larch.....		50,000
Jack Pine.....		187,000
Red Pine.....		80,000
Scotch Pine.....		1,150,000
White Pine.....		1,475,000
Norway Spruce.....		65,000
White Spruce.....		455,000
Total.....		3,705,000
Grand Total.....		4,452,000

MIDHURST:

Seed Beds: Seed beds were sown both in spring and fall, as follows:—

SPECIES:	Number in Spring	Number in Fall
Scotch Pine.....	64	54
Jack Pine.....	8	10
White Pine.....	5	102
Red Pine.....	6	126
Red Cedar.....	1	20
Balsam.....	1	...
White Spruce.....	7	21
White Cedar.....	6	20
Hemlock.....	..	8
Totals.....	98	361

HARDWOOD SEED SOWN

SPECIES:	Amount Bushels.
Red Maple.....	7
Silver Maple.....	5
White Elm.....	4
Red Oak.....	22
Black Cherry.....	4
Basswood.....	2
White Ash.....	5
Black Ash.....	5
Total.....	54

Nursery Lines: Transplanting was carried on during spring and fall. Fall transplanting was not successful in 1924 on account of heaving in the spring. This season the fall transplants are covered with a light mulch of wheat straw. It has been noted that the larger plants have a far less tendency to heave, so on this account two-year-old seedlings are transplanted in fall in preference to one-year-old seedlings. A system that allows fall transplanting aids in division of labour in regard to the seasons.

Permanent Planting: Four hundred and twenty-eight acres have been planted permanently on the station property, 200 acres being this year's planting, leaving 125 acres to be planted. All the plantations are doing well. In one sixteen-acre scotch pine plantation planted last spring it was impossible to find a dead tree. Windbreaks have been planted dividing nursery into compartments.

Silviculture: There are 136 acres of swamp land and 114 acres of hardwood bush on station property. Roads have been laid out and cut through in both hardwoods and swamp, making it possible to practise selection cutting. In the swamp an improvement cutting is being made in a fine fifteen-year-old stand of white spruce that occurs naturally.

About fifty acres of hardwood have seeded naturally with red oak the past summer. This fall thirty-nine acres were underplanted with white pine, where oak had not come in owing to scarcity of seed trees.

General Work: The nursery ground is being built up by plowing under cover crops of sweet clover, rye and vetch, 200 loads of well decomposed muck was hauled from swamp last winter and put in land. Manure is brought from adjacent farms.

A one-storey frame building, 22 feet by 22 feet, was built to be used as lunch room for men and a part of building was partitioned off to be used as outside office. A stone fence with cobble stone entrance was built in front of site of proposed superintendent's residence. Roads around site were graded and will be gravelled during winter. Ground for lawn was given a good dressing of clay.

Roads: Fire roads have been extended this year. Most of the fire-guards have been stumped, making cultivation easier, and also making more effective fire-guards. Some of main roads, including sixth concession, have been graded. Considerable gravelling will be done during the winter.

Publicity: Exhibits were held at the Barrie, Alliston, Beeton and Elmvale fairs. The main part of exhibit showed different species, as sent out for permanent planting. Quite a number of prospective planters left their names and addresses for the purpose of securing application blanks.

STOCK ON HAND DECEMBER 1st, 1925

CONIFERS:

White Pine.....	1,507,500
Red Pine.....	1,605,300
Scotch Pine.....	1,709,550
Jack Pine.....	220,300
White Cedar.....	432,250
White Spruce.....	319,300
Norway Spruce.....	47,265
Balsam.....	120,000
Sitka Spruce.....	10,000
Total.....	5,971,465

HARDWOODS:

White Elm.....	89,600
Silver Maple.....	62,625
Walnut.....	1,118
White Ash.....	32,575
Red Oak.....	4,760
Black Cherry.....	79
Sugar Maple.....	11,654
Black Locust.....	50
Total.....	202,491
Grand Total.....	6,173,956

TRANSPLANT NURSERIES

SAND BANKS:

A quantity of rooted Carolina poplars, which had been grown on the property from cuttings, were transplanted to the more sheltered places of the sand banks. In moving these the roots were trimmed and in each case a ball of nursery soil was carried with the tree; 8,113 of these were planted in the spring and of those set out before the season was too far advanced for transplanting very few died. In addition to the rooted poplar on the property, a surplus of cuttings from other nurseries were also set out. These numbered 20,160. A large quantity of jack pine which had been placed in nursery rows when the work was commenced and which were becoming too large for distribution, were also planted in sheltered places.

The following is a list of the trees in the nursery:—

CONIFERS:

Jack Pine.....	160,000
Scotch Pine.....	38,570
Red Pine.....	1,400
White Pine.....	4,375
White Cedar.....	16,200
Red Cedar.....	38,350
White Spruce.....	37,500
European Larch.....	1,970

Total.....	298,465
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HARDWOODS:

Oak.....	700
Hard Maple.....	4,400
Soft Maple.....	1,820
Elm.....	1,350
White Ash.....	80,400
Butternut.....	4,700
Mountain Ash.....	1,360
Manitoba Maple.....	30
Basswood.....	10
Locust.....	12

Total.....	94,782
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Grand Totals.....	393,247
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KEMPTVILLE:

Trees were distributed locally from this nursery and a few were shipped by rail during the spring. Stock on hand at present is as follows:—

CONIFERS:

White Pine.....	7,418
Red Pine.....	18,370
Scotch Pine.....	42,786
Jack Pine.....	36,100
Norway Spruce.....	4,460
White Spruce.....	15,556
White Cedar.....	6,400

Total.....	131,090
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HARDWOODS:

Ash.....	10,243
White Elm.....	9,180
Silver Maple.....	1,273
Walnut.....	525
Poplar.....	1,073
Willow.....	301

Total.....	22,795
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Grand Totals.....	153,885
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COUNTY FORESTS

HENDRIE:

Approximately 700 of the 1,000 acre block have been permanently planted, leaving 100 acres of open land and 200 acres of second growth.

This past season's planting was very successful, none of plantations having a loss of more than five per cent. Some of older plantations are beginning to make a fine showing.

Two hundred and twenty-five acres were planted during spring of 1925 and 40,000 white pine were underplanted under poplar in the fall.

PLANTATIONS, SPRING 1925

SPECIES:	Number.	Acres.
Red and White Pine, mixed.....	60,500 R. 60,500 W.	100
Scotch Pine.....	54,450	45
European Larch.....	36,300	30
Jack Pine.....	60,500	50
Totals.....	272,250	225

Cost of Planting, 1925: Costs for the spring planting were worked up and gave the following results:—

Cost for planting per acre including lifting, hauling, supervision and planting.....	\$5.30
Cost for furrowing out per acre.....	1.00
Total cost per acre.....	\$6.30

All main fire-guards were stumped, making them easier to cultivate and also making more effective fire-guards.

A thirty-two-foot wooden tower was built on highest elevation of property to serve as lookout tower.

The boundary line at south end of property was run by transit and was fenced sufficiently to keep cattle out.

VIVIAN:

Planting operations were carried on here during the spring season and the following trees were set out:—

White Pine.....	90,000
Red Pine.....	110,000
Scotch Pine.....	40,000
Jack Pine.....	30,000
Larch.....	10,000
Soft Maple.....	2,000
Poplar.....	8,000
Total.....	290,000

During the summer the acreage of this forest was increased by 400 acres by the purchase of another block of land about one mile north of the original block. This additional area contains very little woodland and has within its boundaries some of the poorest blow sand of the district.

During the autumn a combined stable, shed and workshop was erected to serve the needs of the forest.

NORTHUMBERLAND:

During the spring season the following species were planted:—

White Pine.....	35,000
Red Pine.....	132,000
Scotch Pine.....	15,000
Jack Pine.....	33,000
Larch.....	3,000
Total.....	218,000

The main highways of the property were fenced during the summer and a dwelling was erected to serve as a foreman's residence.

UXBRIDGE:

For some years the county council of Ontario has been negotiating for the purchase of a block of land for reforestation purposes. Late in the autumn of this year the council sanctioned the purchase of approximately 1,000 acres in Uxbridge Township. The area consists of mostly poor sand land with occasional pieces of woodland. It is proposed to commence planting work in the spring of 1926.

PRIVATE FORESTS

OSLER:

A permanent and experienced foreman was put in charge of this forest in time for spring planting. The following species were set out:—

White Pine.....	10,000
Red Pine.....	47,000
Scotch Pine.....	49,000
Jack Pine.....	27,000
White Spruce.....	65,000
Cedar.....	5,000
Larch.....	3,175
Elm.....	3,000
Ash.....	4,000
Soft Maple.....	25,000
Cuttings.....	4,000
Total.....	242,175

WILLIAMS:

The following trees were planted on this forest:—

White Pine.....	3,000
Red Pine.....	10,000
Spruce.....	2,000
Total.....	15,000

TREE PLANTING

PRIVATE PLANTING:

The number of persons receiving trees this year increased considerably over former years. In all there were 3,181 applicants who procured a total of 5,277,237 trees of all species.

DEMONSTRATION PLOTS:

New plots established:

Barrie.....	Scotch Pine.....	2,500
	Jack Pine.....	500
Brant.....	Jack Pine.....	1,000
	Scotch Pine.....	2,000
	White Spruce.....	1,000
	Elm.....	200
	White Ash.....	200
	Soft Maple.....	200
	Locust.....	200
	Chestnut.....	200

Brampton.....	Jack Pine.....	500
	Scotch Pine.....	500
	White Spruce.....	4,000
	Elm.....	500
	White Ash.....	500
	Soft Maple.....	500
	Poplar Cuttings.....	100
Camp Borden...	Willow Cuttings.....	100
	Jack Pine.....	150,000
	Scotch Pine.....	10,000
	Butternut.....	50
Glanford.....	White Pine.....	1,000
	Scotch Pine.....	2,000
	Butternut.....	1,000
	Elm.....	1,400
	Ash.....	1,400
	Hard Maple.....	500
	Soft Maple.....	1,000
Oakville.....	Scotch Pine.....	800
Port Hope.....	White Pine.....	1,000
	Scotch Pine.....	1,000
	Jack Pine.....	1,000
	Red Pine.....	1,000
Richmond Hill..	Scotch Pine.....	500
	Jack Pine.....	500
	Larch.....	500
	Elm.....	200
Mono.....	Ash.....	100
	Scotch Pine.....	1,000
	Red Pine.....	2,000
	Jack Pine.....	1,000
Waterloo.....	Scotch Pine.....	3,000
	Jack Pine.....	2,000
	White Spruce.....	25
	Butternut.....	500
	Elm.....	1,000
	Ash.....	800
	Soft Maple.....	1,000
Woolwich.....	Chestnut.....	500
	White Pine.....	2,000
	Scotch Pine.....	5,000
	Jack Pine.....	3,000
	Larch.....	1,000

Additions to plots previously established:—

Beeton.....	Scotch Pine.....	10,000
Colborne.....	Jack Pine.....	1,000
	Scotch Pine.....	1,000
Cramahe.....	Red Pine.....	2,000
	Scotch Pine.....	3,000
Guelph.....	Scotch Pine.....	15,000
North York....	Scotch Pine.....	1,500
	Jack Pine.....	3,000
Midland.....	Scotch Pine.....	1,000
	White Spruce.....	1,000
	Elm.....	1,000
Mulmur.....	White Pine.....	2,000
	Scotch Pine.....	10,000
	Jack Pine.....	8,000
Norfolk.....	Jack Pine.....	45,000
	Elm.....	1,000
	Soft Maple.....	1,000
Sunnidale.....	Scotch Pine.....	3,000
	Jack Pine.....	6,000
	Poplar Cuttings.....	5,000
	Rooted Poplar.....	50

SEED COLLECTING

The following seed was collected during the year:—

SPECIES:	Bushels.
White Pine.....	1 6/8
Scotch Pine.....	526
Jack Pine.....	98
Norway Spruce.....	29 6/8
White Spruce.....	71 5/8
Cedar.....	16
Red Cedar.....	5 4/8
Basswood.....	11 5/8
Butternut.....	7/8
Red Oak.....	89 3/8
Walnut.....	350
White Ash.....	42 2/8
Soft Maple.....	56
Red Maple.....	15
Elm.....	12
Black Cherry.....	48 1/8

SUMMARY OF NURSERY STOCK

NURSERY	Conifers	Hardwoods	Totals
St. Williams.....	17,707,600	781,500	18,489,100
Orono.....	3,705,000	747,000	4,452,000
Midhurst.....	5,971,465	202,491	6,173,956
Sand Banks.....	298,465	94,782	393,247
Kemptville.....	131,090	22,795	153,885
Totals.....	27,813,620	1,848,568	29,662,188

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private Planting (reforestation and windbreaks).....	4,561,157	537,330	178,750	5,277,237
Demonstration Plots.....	312,325	13,350	5,200	330,875
Hendrie Forest.....	280,750			280,750
Vivian Forest.....	280,000	2,000	8,000	290,000
Northumberland.....	218,000			218,000
Private Forests.....	221,175	32,000	4,000	257,175
St. Williams.....	163,140	2,000		165,140
Orono.....	12,000	6,000		18,000
Midhurst.....	205,900	10,720		216,620
Sand Banks.....	102,865		28,433	131,298
Totals.....	6,357,312	603,400	224,383	7,185,095

IV. FOREST INVESTIGATIONS

FOREST SURVEYS:

Programme: The forest survey programme for 1925 included the examination of four areas, namely:—

A. (1) *Groundhog River Area*: A tract lying south of the section of the Transcontinental Railway from Kapuskasing to Fauquier and extending to the Canadian National Railway, in all twenty-seven townships, being an area of 2,079 square miles or 1,330,560 acres.

(2) *Opasatika River Area*: A tract lying north of the Transcontinental Railway and tributary to the Opasatika River. It extends north of townships Pearce, Nixon and Neely to the Missinaibi River. The area comprises 1,050 square miles or 672,000 acres.

B. During October three parties investigated conditions:

(1) Around Kabinakagami Lake, an area lying southwest of Oba in the angle formed by the Algoma Central Railway and the Canadian National Railway. This area contains 729 square miles or 466,560 acres.

(2) The area immediately east of the Longlac pulp limit and bounded on the north by the eastern arm of the Longlac limit, on the south by the Lake Superior and Pic River limits, and on the east by the Nagagami pulp limit.

Two areas were made of this tract and divided by the Canadian National Railway. The northern portion was completed and the western third of the southern piece.

This whole area contains 1,561 square miles or 998,880 acres.

INVESTIGATIVE WORK:

One party under the direction of Mr. J. A. Brodie carried on investigative work in addition to their regular survey programme. This work was to determine the practicability of applying statistics to estimating and secure:

(1) A measure of the variation in cordage existing within types.

(2) The amount of sampling necessary for a given degree of accuracy in an estimate.

In addition to the above, work was carried on to investigate:

(1) The accuracy of the method of estimating as adopted by the Forestry Branch.

(2) The effect in the estimate of different percentage cruises having as a check an area cruised 100%.

From May 23rd to September 26th, 46 men were employed in the survey of the Groundhog and Opasatika River areas. These men were organized into 5 parties, 4 nine-men parties and 1 eight-men, also a chief and canoeman.

During October eleven men were employed.

The total area surveyed totals 5,419 sq. miles or 3,468,000 acres. At a cost per sq. mile of \$5.77 and cost per acre .90 cents.

FOREST PATHOLOGY:

During the past season forest pathological work was continued under the direction of Doctor J. H. Faull of the University of Toronto. This investigation was concerned with various forest tree diseases and particularly the question of red stain in connection with Jack Pine. It is hoped at a later date to publish a more detailed report on these pathological investigations.

E. J. ZAVITZ,
Provincial Forester.

Appendix No. 29
Timber areas disposed of from November 1st, 1924, to October 31st, 1925

Date offered	Date sold	Locality	Area Sq. Miles	No. of Tenders	To whom sold	Price paid	Proposition	File
1924 Oct. 14	1924 Nov. 10	Berth No. 40 and parcels 1, 2 and 3, Rainy River Dist.	51	2	Border Lumber Co., Rainy Lake, Ont.	Tendered Upset Dues Red and white pine. . . . \$2 10+\$6 50+\$2 50 Jackpine. 2 05+ 2 50+ 2 50 Spruce. 60+ 4 00+ 2 00 Spruce pulpwood. . . . 45+ . . . 80 Other pulpwoods. . . . 15+ . . . 40 Cedar poles: 30 ft. and less. . . . 15+ . . . + 25 31 ft. to 40 ft. . . . 05+ . . . 50 41 ft. to 50 ft. . . . 25+ . . . 75 51 ft. and over. . . . 25+ 1 00+ 1 00	Logging. . .	54680
Oct. 24	Nov. 24	Peck Twp., except lots 21 to 25, con. 2; lots 21 to 25, con. 3; lots 21 to 24, con. 4.	80	2	Edward Clark & Sons, Ltd., Bank of Hamilton Bldg., Toronto.	Tendered Upset Dues Pine. \$4 50+12 00+\$2 50 Birch, maple, and other hardwood. 2 00+ 5 50+ 2 50 Hemlock. 1 00+ 5 00+ 1 50 Spruce, balsam and other softwood. 1 00+ 7 00+ 2 00 Fuelwood. 50	Hardwood	56438
Oct. 16	Nov. 15	Finlayson Twp., west half. . . .	40	2	Bethune Pulp & Lumber Co., Huntsville, Ont.	Tendered Upset Dues Pine. \$3 00+\$8 50+\$2 50 Birch, maple. 1 50+ 2 00+ 2 50 Hemlock. + 2 50+ 1 50 Spruce, balsam, cedar. . . 1 00+ 2 00+ 2 00 Spruce pulpwood. . . . 05+ 1 20+ 80 Other pulpwoods. . . . 10+ 1 60+ 40 Cedar posts. 02+ . . . 02 Fuelwood. 50	Logging. . .	20906
Nov. 4	Nov. 15	Hudson, N. $\frac{1}{2}$ 10, con. 1; S. $\frac{1}{2}$ 10, con. 2; N. $\frac{1}{2}$ 11, con. 1; Firstbrook, N. $\frac{1}{2}$ 11, con. 6.	1	3	Shepherdson, Ltd., New Liskeard.	Tendered Upset Dues Pine, red and white. . . . \$3 50+\$3 00+\$2 50 Jackpine. 2 50+ 2 50+ 2 50 Cedar. 1 00+ 2 00+ 1 50 Cedar posts. 02+ . . . 03+	Barrels, tubs, and boxes	11634

Nov. 29	Dec. 10	Janes, lot 7, con. 4; lot 6, con. 5	1	1	Mageau Lumber Co., Field, Ont.	Red and white pine.....	Upset \$6 00+\$2 50	Dues 125C.
Dec. 16	Dec. 29	Armour Twp., lot 32, con. 1...	1½	1	Shortread Lumber Co., Kearney,	Hemlock..... Birch..... Spruce..... Balsam..... Spruce pulpwood..... Balsam, pulpwood..... Cordwood.....	Tendered Dues \$2 50+\$1 50 4 00+2 50 3 00+2 00 3 00+1 50 1 50+80 1 50+40 50+50	790
Dec. 18	Dec. 29	Baynes Twp., S.E. corner.....	3	2	Hope Lumber Co., Thessalon, Ont.	Red and white pine.....	Tendered Upset \$0 50+\$6 50+\$2 50	55586
1925 Jan. 14	1925 Jan. 26	Mississauga Forest Reserve, berth 22, range 15; berth 22, range 16; berth 23, range 15; berth 23, range 16; berth 8H and 9H.	216	1	Irwin G. Sexsmith, Selby, Ont., licensee to Mississauga Tie & Lumber Co., Toronto.	Red and white pine..... Jackpine..... Cedar..... Railway ties..... Cedar posts..... Cedar poles: 30 ft. and less..... 31 ft. to 40 ft..... 41 ft. to 50 ft..... 51 ft. and over.....	Dues \$7 50+\$2 50 2 50+2 50 1 50+1 50 02¾+10 10+02 Each 25+25 50+50 75+75 1 00+1 00	56757
Jan. 27	Feb. 6	Berth M-7, a limit north of Umbach Twp. and north part of Umbach, lots 7, 8, 9 and 10, con. 6, Dist. of Kenora.	2¾	1	Simpson & Short, Minaki, Ont.	Jackpine..... Spruce..... Poplar..... Spruce pulpwood.....	Tendered Upset \$1 75+\$5 50+\$2 50 1 75+6 00+2 00 3 00+2 00 80	56542
June 12	July 2	M-8 and M-9, north of Ignace Station on C.P.R., vicinity of Indian Lake and peninsula south of Bear Lake and north of Victoria Lake, District of Kenora.	14	1	Indian Lake Lumber Co., Winnipeg.	Red and white pine..... Jackpine..... Spruce..... Poplar..... Spruce pulpwood.....	Upset Dues \$11 50+\$2 50 7 50+2 50 7 00+2 00 2 00+2 00 80+1 40	3055

Appendix No. 29—Continued
Timber areas disposed of from November 1st, 1924, to October 31st, 1925

Date offered	Date sold	Locality	Area Sq. Miles	No. of Tenders	To whom sold	Price paid	Proposition	File																					
1925 Aug. 4	1925 Aug. 26	German Twp., Dist. of Cochran, N. $\frac{1}{2}$ 7, con. 1; S. $\frac{1}{2}$ 6, con. 2; N. $\frac{1}{2}$ 7, 8, con. 2; S. $\frac{1}{2}$ 8, con. 3.	1 $\frac{1}{2}$	1	G. Charpentier, Connaught Sta.	Jackpine dues, only \$2.50 per M.	Logging	14781																					
Aug. 21	Sept. 9	Conmee Twp., N. $\frac{1}{2}$ 9, con. 8, Dist. of Thunder Bay.	$\frac{1}{4}$	2	Scott Lumber Co., Port Arthur.	<table><tr><td>Jackpine.....</td><td>Paid</td><td>Dues</td></tr><tr><td>Poplar.....</td><td>\$2.00 +</td><td>\$2.50</td></tr><tr><td>Jackpine cordwood.....</td><td>2.00 +</td><td>2.00</td></tr><tr><td>Ties.....</td><td>25 +</td><td>40</td></tr><tr><td></td><td>15 $\frac{1}{2}$ +</td><td>10</td></tr></table>	Jackpine.....	Paid	Dues	Poplar.....	\$2.00 +	\$2.50	Jackpine cordwood.....	2.00 +	2.00	Ties.....	25 +	40		15 $\frac{1}{2}$ +	10	Logging...	37240						
Jackpine.....	Paid	Dues																											
Poplar.....	\$2.00 +	\$2.50																											
Jackpine cordwood.....	2.00 +	2.00																											
Ties.....	25 +	40																											
	15 $\frac{1}{2}$ +	10																											
Aug. 17	Sept. 9	Teck Twp. mining claims L. 14103 and L. 13411. Grenfell Twp., L. 14459, L. 15301, L. 15302, L. 15303, L. 15372, L. 13109, L. 15371, L. 15370, L. 15367, L. 15368, L. 15369, L. 13292.	1	1	John Clark, Englehart.	<table><tr><td>Jackpine.....</td><td>Upset</td><td>Dues</td></tr><tr><td>Spruce.....</td><td>\$4.50 +</td><td>\$2.50</td></tr><tr><td>Poplar.....</td><td>4.50 +</td><td>2.00</td></tr><tr><td>Spruce pulpwood.....</td><td>1.00 +</td><td>2.00</td></tr><tr><td>Poplar pulpwood.....</td><td>10 +</td><td>1.40</td></tr><tr><td>Poplar pulpwood.....</td><td>45 +</td><td>40</td></tr></table>	Jackpine.....	Upset	Dues	Spruce.....	\$4.50 +	\$2.50	Poplar.....	4.50 +	2.00	Spruce pulpwood.....	1.00 +	2.00	Poplar pulpwood.....	10 +	1.40	Poplar pulpwood.....	45 +	40	Logging...	10857			
Jackpine.....	Upset	Dues																											
Spruce.....	\$4.50 +	\$2.50																											
Poplar.....	4.50 +	2.00																											
Spruce pulpwood.....	1.00 +	2.00																											
Poplar pulpwood.....	10 +	1.40																											
Poplar pulpwood.....	45 +	40																											
Aug. 14	Sept. 10	Strange Twp., Dist. Thunder Bay, N. $\frac{1}{2}$ of S. $\frac{1}{2}$ 10, con. 3, with exception of N.E. $\frac{1}{4}$, S. $\frac{1}{2}$ 5, S. $\frac{1}{2}$ 7, con. 4; S. $\frac{1}{2}$ 7, con. 5; S. $\frac{1}{2}$ 7, S. $\frac{1}{2}$ 8, S. $\frac{1}{2}$ 9, S. $\frac{1}{2}$ 10, con. 6; N. $\frac{1}{2}$ 6, N. $\frac{1}{2}$ 8, N. $\frac{1}{2}$ 10, con. 7	3	2	Joseph Servais, Port Arthur, and J. J. McKeown.	<table><tr><td>Jackpine.....</td><td>Paid</td><td>Dues</td></tr><tr><td>Spruce pulpwood.....</td><td>\$9.00 +</td><td>\$2.50</td></tr><tr><td>Poplar and balsam.....</td><td>50 +</td><td>1.40</td></tr><tr><td>Poplar and balsam.....</td><td>3.00 +</td><td>2.00</td></tr><tr><td>Jackpine ties.....</td><td>11 $\frac{1}{2}$ +</td><td>10</td></tr></table>	Jackpine.....	Paid	Dues	Spruce pulpwood.....	\$9.00 +	\$2.50	Poplar and balsam.....	50 +	1.40	Poplar and balsam.....	3.00 +	2.00	Jackpine ties.....	11 $\frac{1}{2}$ +	10	Logging...	8164 A						
Jackpine.....	Paid	Dues																											
Spruce pulpwood.....	\$9.00 +	\$2.50																											
Poplar and balsam.....	50 +	1.40																											
Poplar and balsam.....	3.00 +	2.00																											
Jackpine ties.....	11 $\frac{1}{2}$ +	10																											
Aug. 13	Sept. 10	Berth W.R. 4 and parcel 4.....	18 $\frac{1}{2}$	1	Indian Lake Lumber Co., Winnipeg.	<table><tr><td>Red and white pine.....</td><td>Upset</td><td>Dues</td></tr><tr><td>Jackpine.....</td><td>\$8.00 +</td><td>\$2.50</td></tr><tr><td>Spruce.....</td><td>6.00 +</td><td>2.50</td></tr><tr><td>Birch.....</td><td>5.75 +</td><td>2.00</td></tr><tr><td>Poplar.....</td><td>3.50 +</td><td>2.00</td></tr><tr><td>Spruce pulpwood.....</td><td>2.00 +</td><td>2.00</td></tr><tr><td>Spruce pulpwood.....</td><td>40 +</td><td>1.40</td></tr></table>	Red and white pine.....	Upset	Dues	Jackpine.....	\$8.00 +	\$2.50	Spruce.....	6.00 +	2.50	Birch.....	5.75 +	2.00	Poplar.....	3.50 +	2.00	Spruce pulpwood.....	2.00 +	2.00	Spruce pulpwood.....	40 +	1.40	Logging...	39599
Red and white pine.....	Upset	Dues																											
Jackpine.....	\$8.00 +	\$2.50																											
Spruce.....	6.00 +	2.50																											
Birch.....	5.75 +	2.00																											
Poplar.....	3.50 +	2.00																											
Spruce pulpwood.....	2.00 +	2.00																											
Spruce pulpwood.....	40 +	1.40																											

1925 Aug. 15	1925 Sept. 10	Two, small areas adjoining limit "F," Dist. of Kenora.	5	1	J. B. Hardy, Fort William.	Jackpine..... Spruce..... Ties..... Spruce pulpwood..... Fuelwood.....	Upset Dues \$3 50+\$2 50 4 00+2 00 15½+10 80+1 40 25+25	Logging...	34745
1925 Aug. 5	1925 Sept. 10	Calais Twp., Dist. of Sudbury.. Lerwick Twp., Dist. of Algoma.	36 81	2	D. H. Currie, Stack- pool, Ont.	Jackpine.....	Paid Upset Dues \$0 50+\$4 00+\$2 50	Logging...	55346
Aug. 13	Sept. 10	Nipigon Twp., Dist. of Thunder Bay, con. 6, lots W. ½ 6, E. ½ 8, 10, 11, W. ½ 13, 15; con. 7, lots 2, 3, 4, 5, W. ½ 6, W. ½ 7, 8, W. ½ 9, W. ½ 11, W. part 12, W. part 13, 14; con. 8, lots 2, E. part 3, W. ½ 8, W. ½ 9, E. ½ 10, E. ½ 12, E. part 13, 15; con. 9, lots E. ½ 2, E. ½ 9, W. ½ 13, w. part 14.	10¼	1	Newago Co., Ltd., Port Arthur, Ont.	Pine.....	Dues \$7 50+\$2 50	Saw logs...	33772
Aug. 22	Sept. 14	Radcliffe Twp., Dist. of Ren- frew, lot 14, con. 12.	½	2	Anthony Burchat, Wilno, Ont.	Pine..... Hardwood..... Spruce and poplar..... Hemlock..... Spruce pulpwood..... Balsam pulpwood..... Poplar pulpwood..... Cedar posts..... Cedar poles.....	Paid Dues \$4 50+\$2 50 50+2 50 2 00+2 00 50+1 50 25+1 40 95+70 10+40 01+03 10+35	Logging...	46730
Aug. 24	Sept. 14	Bethune Twp., lots 9 and 10, con. 9, Dist. of Parry Sound.	½	2	Shortreed Lumber Co., Ltd., Kearney, Ont.	Birch..... Hemlock..... Hardwood, Fuelwood...	Paid Upset Dues \$1 00+\$4 00+\$2 50 50+2 50+1 50 10+50+50	Hardwood.	33250
July 21	Aug. 10	Spohn Twp., lots S. ½ 2, con. 8, Dist. of Rainy River.	½	1	P. N. Dalseg, McInnis Creek.	Pine.....	Upset Dues \$0 15+\$4 50+\$2 50	Logging...	20690

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1924, to October 31st, 1925

Date offered	Date sold	Locality	Area Sq. Miles	No. of Tenders	To whom sold	Price paid	Proposition	File
1925 Aug. 14	1925 Sept. 10	Hartman Twp., Dist. of Kenora, lots N. part 6, S. part 10, N. part 10, S. part 11, N. part 11, con. 1; S. part 5, con. 2.	1½	3	D. W. Scott, Dryden, Ont.	Bid Upset Dues Jackpine pulpwood \$0 10+\$0 10+\$0 40 Jackpine ties 07+ 10+ 10 Fuelwood 25 Large jackpine \$12.50 per M., including dues.	Pulp and tie.	28203
Aug. 6	Sept. 18	Berth S.V. 13, Dist. of Kenora.	3	2	Ignace Lumber Co., c/o McCarthy & McCarthy, Toronto	Paid Upset Dues Red and white pine \$0 20+\$3 00+\$2 50 Jackpine 20+ 1 00+ 2 50	General Logging.	54355
Aug. 6	Sept. 18	Berth S.V. 13A, Dist. of Kenora	4	2	Ignace Lumber Co., c/o McCarthy & McCarthy, Toronto.	Paid Upset Dues Red and white pine \$0 20+\$3 00+\$2 50 Jackpine 20+ 1 00+ 2 50	General logging.	54355
Aug. 6	Sept. 18	Berth S.V. 14, Dist. of Kenora.	26½	2	Ignace Lumber Co., c/o McCarthy & McCarthy, Toronto.	Paid Upset Dues Red and white pine \$0 20+\$3 00+\$2 50 Jackpine 20+ 1 00+ 2 50	General logging.	54355
Aug. 6	Sept. 18	Berth S.V. 12, Dist. of Kenora.	1	1	Shevlin Clarke Co., Minneapolis, Minn.	Paid Upset Dues Red and white pine \$3 00+\$2 50 Jackpine 1 00+ 2 50	General logging.	54355
Aug. 6	Sept. 18	Berth K. 2, Dist. of Kenora. . .	14	1	Shevlin Clarke Co., Minneapolis, Minn.	Paid Upset Dues Red and white pine \$3 00+\$2 50 Jackpine 1 00+ 2 50	General logging.	54355
Aug. 6	Sept. 18	Islands in Quetico Lake near T.B. 50, Dist. of Rainy River.	¼	1	Shevlin Clarke Co., Minneapolis, Ont.	Paid Upset Dues Red and white pine \$8 00+\$2 50 Jackpine 4 00+ 2 50	General logging.	54355

1925 Sept. 10	1925 Oct. 1			1	W. F. Elliott, Unionville, Ont.	Crown dues only for all kinds.....	General Hem lock	18289
		Cardiff Twp., Dist. of Haliburton, lot 11, con. 8.	$\frac{1}{2}$	1				
Sept. 15	Oct. 6	Blocks 3A and 4A, Dist. of Rainy River.	11	2	J. A. Mathieu, Ltd., Rainy Lake.	Bid Upset Dues Red and white pine..... \$5 36+\$6 50+\$2 50 Jackpine..... 6 86+ 3 00+ 2 50 Spruce..... 7 36+ 3 00+ 2 00 Jackpine pulpwood..... 10+ 40	General logging.	18648
Sept. 24	Oct. 15	Ottaway Twp., lots N. $\frac{1}{2}$ 3, N. $\frac{1}{2}$ 4, con. 3; lot 4, con. 4; lot 4, con. 5, Dist. of Cochrane..	$1\frac{1}{2}$	2	Buskagan River Pulp & Lumber Co., Cochrane, Ont.	Bid Upset Dues Spruce and balsam..... \$0 10+\$3 00+\$2 00 Spruce pulpwood..... 10+ 70+ 1 40 Balsam pulpwood..... 10+ 30+ 70	Pulp.....	28664
Sept. 29	Oct. 17	Berth M-16, area north of English River, Dist. of Kenora.	$5\frac{1}{2}$	1	Geo. E. Farlinger, Sioux Lookout, Ont.	Paid Upset Dues Jackpine..... \$1 75+\$6 00+\$2 50 Spruce..... 50+ 6 50+ 2 00 Poplar..... 50+ 2 00 Spruce pulpwood..... 05+ 10+ 1 40	Logging...	21140
Oct. 2	Oct. 19	Tudor Twp., lot 10, con. 7....	$\frac{1}{2}$	1	Allen Lumber Co., Ltd., Millbridge.	Paid Upset Dues Elm..... \$0 25+\$2 50 Hemlock..... 25+ 1 50 Poplar..... 10+ 40	Logging...	11957
Sept. 30	Oct. 20	Prince Twp., N.W. $\frac{1}{4}$ sec. 3, N.E. $\frac{1}{4}$ 4, S.W. $\frac{1}{4}$ 5, S.W. $\frac{1}{4}$ 7, N.W. $\frac{1}{4}$ 7, S.W. $\frac{1}{4}$ 8, S.E. $\frac{1}{4}$ 8, W. $\frac{1}{2}$ of S.E. $\frac{1}{4}$ 28, Dist. of Algoma.	$1\frac{1}{2}$	1	Algoma Lumber & Tie Co., Ltd., Sault Ste. Marie, Ont.	Paid Upset Dues Maple, oak and birch.... \$0 62 $\frac{1}{2}$ +\$2 50 Hemlock..... 37 $\frac{1}{2}$ + 1 50 Cordwood..... 12 $\frac{1}{2}$ + 50	Hardwood.	9160A
Oct. 12	Oct. 26	Shedden Twp, lots 5, 6, 7, 8 and 9, con. 5; lot 9, con. 6, Dist. of Algoma.	3	2	G. W. Hamilton, Spanish, Ont.	Paid Upset Dues Red and white pine..... \$2 55+\$3 00+\$2 50 Birch..... 2 55+ 3 00+ 2 50 Spruce and balance..... 2 00+ 3 00+ 2 00	Logging...	23848
Oct. 1	Oct. 22	Firstbrook Twp., lot S. $\frac{1}{2}$ 11, con. 5, Dist. of Temiskaming.	$\frac{1}{2}$	1	Norfolk & Rochester Hardware Co., Ltd.	Paid Upset Dues Jackpine..... \$0 25+\$4 50+\$2 50 Spruce..... 25+ 5 00+ 2 00 Spruce pulpwood..... 10+ 40+ 1 40	Logging...	3144A

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1924, to October 31st, 1925

Date offered	Date sold	Locality	Area Sq. Miles	No. of Tenders	To whom sold	Price paid	Proposition	File
1925 Sept. 25	1925 Oct. 28	East half Twp. 41, west half Twp. Addison, south half Twp. Lang, S.W. ¼ Twp. Abbey, Dist. of Sudbury.	63	1	Austin & Nicholson, Chapleau, Ont.	Paid Upset Dues Red and white pine..... \$1 50+\$6 00+\$2 50 Jackpine..... 75+ 3 50+ 2 50 Spruce..... 1 00+ 4 00+ 2 00 Spruce pulpwood..... 1 75+ 25+ 1 40 Jackpine ties..... 17+ + 10	Logging...	332
Sept. 30	Oct. 24	Tudhope Twp., lots 9 and 10, con. 2, Dist. of Temiskaming	1	1	B. Rozell and C. Burns, Kenabeek, Ont.	Upset Dues \$0 50+\$2 50	Logging...	16087
Oct. 13	Oct. 30	Area on Gull River near Twp. 20, Dist. of Kenora.	16	3	Bryson Cobb, Ignace, Ont.	Bid Upset Dues Jackpine..... \$3 00+\$6 00+\$2 50 Spruce pulpwood..... 10+ 80+ 1 40	Tie & pulp.	35003
Sept. 29	Oct. 15	Conmee Twp., mining claims 878X, 879X, 880X, R746, R389; Ware Twp., R387 and R388.	1	2	Emile Niami, Kaministiquia, Ont.	Upset Dues \$2 00+\$2 50 10+ 10 50+ 40	Ties & pulp	33966
Oct. 15	Oct. 31	Conmee Twp., claims B.J. 128, B.J. 129, R709, R710, R711, R712, E141, E142, R707 and R708, Dist. of Thunder Bay..	1	1	Scott Lumber Co., Port Arthur, Ont.	Jackpine ties, 10c. per tie, plus 10c. upset, plus 10c. dues.	Ties.....	33966
Sept. 29	Oct. 31	East half of Dunbar and north half of Beaumont, Dist. of Sudbury.	36	3	Strong Lumber Co., Ltd., North Bay.	Paid Upset Dues Red and white pine..... \$1 50+\$7 50+\$2 50	Logging...	987

1925 Oct. 20	1925 Oct. 31	Drury Twp., lots 10 and 11, con. 6, Dist. of Sudbury.	1	1	Fred Paquette, Worthington, Ont.	Red and white pine..... Spruce..... Tamarac..... Spruce pulpwood..... Balsam pulpwood..... Other pulpwood..... Railway ties..... Fuelwood (soft)..... Fuelwood (hard)..... Cedar posts..... Cedar poles: 30 ft. and less..... 31 ft. to 40 ft..... 41 ft. to 50 ft..... 51 ft. and over.....	Upset Dues \$5 00+\$2 50 2 00+ 2 00 2 00+ 1 50 10+ 1 40 10+ 70 40 05+ 10 25 50 01+ 02 10+ 25 10+ 50 10+ 75 10+ 1 00	General logging.	5327
Oct. 14	Oct. 30	McKenzie Twp., lots 5 and 6, con. 6, Dist. of Parry Sound.	1½	2	Tudhope & Ludgate, Orillia, Ont.	Hemlock..... Spruce..... Birch.....	Upset Dues \$0 50+\$1 50 1 00+ 2 00 1 50+ 2 50	Logging...	60344
Sept. 30	Oct. 28	Marjorie Twp., berth 1, N.E. ¼, Dist. of Algoma.	20¼	1	W. R. Clark and D. Chalykoff, Hearst, Ont.	Jackpine, 12 ins. and up.	Upset Dues \$4 00+\$2 50	Ties.....	39837
Oct. 7	Oct. 30	Nipigon Straits, Dist. of Thun- der Bay.	8	3	Russell Timber Co., Ltd., Port Arthur, Ont.	Spruce..... Birch..... Spruce pulpwood..... Balsam pulpwood..... Cedar posts.....	Bid Upset Dues \$1 00+\$5 00+\$2 00 50+ 2 50+ 2 50 82+ 1 00+ 1 40 72+ 1 30+ 70 02+ 02	Logging...	2496
Oct. 13	Oct. 31	Rolph Twp., S.W. corner, Dist. of Nipissing.	9½	2	Jake E. Stewart, Point Alexander, Ont.	Red and white pine..... Poplar..... Poplar pulpwood.....	Bid Upset Dues \$0 25+\$7 50+\$2 50 50+ 2 00+ 2 00 30+ 80+ 40	Logging...	34047
Oct. 14	Oct. 30	McKenzie Twp., lot 33, con. 8 and 9, Dist. of Parry Sound.	1½	2	L. Robertson, Ardbeg, Ont.	Hemlock..... Birch..... Ash and basswood.....	Upset Dues \$2 50+ 1 50 5 00+ 2 50 7 00+ 2 50	Logging...	53498

Appendix No. 29—Continued
Timber areas disposed of from November 1st, 1924, to October 31st, 1925

Date offered	Date sold	Locality	Area Sq. Miles	No. of Tenders	To whom sold	Price paid	Proposition	File
1925 Sept. 28	1925 Oct. 30	Kirkwall Twp., Dist. of Algoma	81	2	James McCreary, Jr., Sudbury.	Jackpine 12" and up ... \$0 10+\$4 00+\$2 50 and on N.E. part. Fire killed timber: dues only.	Ties and lumber.	60278
Sept. 28	Oct. 30	Lloyd Twp., N.E. ¼, Dist. of Sudbury.	18½	2	James McCreary, Jr., Sudbury.	Bid Upset Dues \$0 10+\$4 00+\$2 50	Ties and lumber.	60278
Sept. 28	Oct. 30	Lloyd Twp., west half, Dist. of Sudbury.	37	2	James McCreary, Jr., Sudbury.	Bid Upset Dues \$0 10+\$4 00+\$2 50	Ties and lumber.	60278
Oct. 1	Oct. 30	Colenso Twp., lots 7, 8, 9 and 10, cons. 1, 2, 3, Dist. of Kenora.	6	1	Thos. Falls, Port Arthur.	Bid Upset Dues Jackpine. \$6 00+\$4 00+\$2 50 Spruce and Balsam. 5 00+ 4 00+ 2 00 Spruce pulpwood. 15+ 10+ 1 40 Balsam pulpwood. 10+ 10+ 70 Hewn ties. 15+ 10	Ties and Pulp.	28443
Oct. 1	Oct. 22	Firstbrook Twp., N. ½ 12, con. 2, S. ½ 8, con. 3, Dist. of Temiskaming.	½	1	Joseph Myers, New Liskeard.	Bid Upset Dues Red and white pine. \$0 10+\$10 00+\$2 50 Jackpine. 10+ 6 00+ 2 50 Spruce. 10+ 6 00+ 2 00 Spruce pulpwood. 05+ 80+ 1 40	Logging ...	3144A
Sept. 29	Oct. 31	Area north of Onion Lake, Dist. of Thunder Bay.	55	3	Pigeon Timber Co., Ltd., Ft. Arthur.	Bid Upset Dues Jackpine. \$1 50+\$5 00+\$2 50 Spruce. 50+ 5 00+ 2 00 Spruce pulpwood. 78+ 85+ 1 40	Logging ...	16064
Sept. 24	Oct. 30	Riddell Twp., S.W. ¼, Dist. of Nipissing.	9	2	Wm. Milne & Sons, North Bay, Ont.	Bid Upset. Dues Red and white pine. \$0 35+\$11 00+\$2 50 Spruce logs. 6 00+ 2 00	Logging ...	38329

1925 Sept. 24	1925 Oct. 30	Law, E. ½, Dist of Nipissing . .	18	2	Tenagami Timber Co., c/o A. B. Gordon, Toronto.	Red and white pine. \$0 75 + \$11 00 + \$2 50 Large spruce. 6 00 + 2 00	Bid Upset Dues	Logging . . .	38329
Sept. 26	Oct. 31	M.6 berth, Dist. of Kenora. . . .	19½	2	A. B. Evans, Fort William, Ont.	Jackpine. \$3 50 + \$4 00 + \$2 50 Spruce. 2 00 + 4 00 + 2 00 Spruce pulpwood. 10 + 70 + 1 40 Dry fuelwood. 25 + 25	Bid Upset Dues	Ties and pulp.	24745
Oct. 14	Oct. 26	Aweres Twp., S.E. ¼ and S.W. ¼, sec. 23.	½	1	Canadian Vatu Drying & Wood- working Co., Sault Ste. Marie.	Maple, birch, etc. \$0 25 + \$1 50 + \$2 50	Bid Upset Dues	Hardwood.	20420

When Granted	Locality	Area	To Whom Granted	Price paid	Proposition	File
By Order-in-Council, dated 13th January, 1925.	Twp. Gladman, lots 1 to 12, cons. 5 and 6.	10	Canadian Timber Co.	Red and white pine, \$8.00 per M., plus \$2.50 dues.	General logging.	8166
By agreement, February 18th, 1925.	Firstbrook Twp., S. ½ 8, Con. 1.	.....	Joseph Myers, New Liskeard.	Spruce and Jackpine, \$5.00 per M. feet B.M. . .	Ties and pulp	3144A

REPORT
OF THE
Minister of Lands and Forests
OF THE
PROVINCE OF ONTARIO

For the Year Ending 31st October

1926

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO
Printed and Published by the Printer to the King's Most Excellent Majesty
1927



TO HIS HONOUR WILLIAM D. ROSS, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1926.

WILLIAM FINLAYSON,
Minister.

HONOURABLE WILLIAM FINLAYSON,
Minister of Lands and Forests.

We have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1926, said report being divided into two parts—Part One dealing with matters affecting Lands and Forests proper, and Part Two dealing with matters under the head of Forestry.

W. C. CAIN,
*Deputy Minister,
Lands and Forests.*

E. J. ZAVITZ,
*Deputy Minister,
Forestry.*

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Report of the Minister of Lands and Forests of the Province of Ontario

For the Year ending 31st October, 1926.

STATUTORY CHANGES

In 1912 an Act was passed for raising money on the Credit of the Consolidated Revenue Fund of Ontario for the primary purposes of encouraging and assisting in the Development of Northern Ontario. The responsibility of administering the Act was placed on the Minister of Lands and Forests and the Northern Development Branch thus came into being. This Branch continued as such until the Session of 1926 when, because of its increased work involving the administration of the bridge, culvert and drain building in the northern portions of the Province, formerly conducted by the Department of Public Works, a special Department of the Service was established to be known as the Department of Northern Development. (See 6, Geo. V, Cap. 10.) Mr. Chas. H. Fullerton, who had been formerly Director of this Branch, and in 1925 named Deputy Minister, was to continue in the capacity and to perform in addition to the duties in connection with Northern Development those pertaining to Colonization Roads.

Another important amendment to the Public Lands Act (see 16 Geo. V, Cap. 8) was passed by the Legislature in 1926 under which provision was made for the appointment by Lieutenant-Governor in Council of a Deputy Minister of Forestry, whose duties comprise those related to and connected with reforestation, forest protection, forest research and investigation. Mr. E. J. Zavitz, Provincial Forester, was appointed Deputy Minister of Forestry and is now functioning in this capacity.

In consequence of the above changes the following report omits such information dealing with Northern Development as past Reports recorded and naturally divides itself into two parts:—*Part One*—covering The Department of Lands and Forests proper and *Part Two* the Forestry Branch of the Department.

Part One is essentially both collecting and spending in its character and embraces all land operations in their diversified form, including settlement and disposition of land for a variety of purposes, Crown Surveys, Water Powers, Timber Sales, Logging and Lumbering Operations, Pulp and Paper Industry, Timber Cruising and Accounting.

Part Two is spending in its nature and specifically applies to those services operated under the head of Forestry. These include Forest Fire Protection, Air Operations, Reforestation and Forest Investigation.

LAND TRANSACTIONS

SETTLEMENT

Normal activity continued in land settlement throughout the fiscal year just closed. While the acreage sold for settlement purposes was less, to a certain extent than the preceding year, the actual purchases increased, largely within the area traversed by the Transcontinental Railway.

The unit of farm holdings having been reduced from 160 to 80 acres in the Great Clay Belt accounts for the decrease in acreage. The departure in thus allotting land was induced by a desire to promote more intensive cultivation, encourage more compact settlement and a greater measure of community life. Although some criticism has been offered to this policy it is confidently expected that these anticipated results will materialize and a more economic method of road building and local improvements will accrue to the advantage of the Province and the pioneer agricultural communities.

Certain group settlements established in the Clay Belt along the Transcontinental and in the northwest part of the Province, referred to in last year's report, continue to make progress and are already taking steps to enlarge the circle of colonization within their respective zones by inviting relatives and friends to migrate from other climes and share the lot of their earlier pioneer brethren.

Their lands being well covered with pulp and the markets of the world being opened to the bona-fide settler, afford golden opportunities to secure ready money in the early stages of clearing and cultivating land. Their lot is made more easy through the Government's system of making loans for the purchase of seed grain and farm stock and otherwise granting assistance by establishing experimental farms and making substantial grants for education and certain legitimate public enterprises. The hardy settlers of the newer districts are now brought in to closer touch with the seat of government through contact with the Supervisor of Settlement, whose regular visits conduce to a better understanding of the needs of the different sections.

Several propositions have been submitted and considered during the year for the establishment of new settlements on a colony basis. Recognizing that the future growth and assured industrial and commercial prosperity is dependent upon a steady increase in population, the Government is prepared to encourage the right type of immigrant and place him on land where, with a reasonable application of the principles of industry and thrift, he will succeed in hewing out and building up a real permanent home.

CHECKING SYSTEM

Precautionary measures are regularly taken to ensure an adequate fulfillment of the settlement regulations and although "Eternal Vigilance" is a recognized watch term with official inspectors, certain individuals under the guise of colonizing go into possession of land and in wholesale fashion strip the pulpwood therefrom. Systematic checking both on work done and in issuing clearances on a holdback co-operative system with purchasers is proving an effective remedy. Just penalties in each case are discouraging the pulpwood pirate and bringing to the Crown a revenue to which it is properly entitled. All legitimate settlers in their wood operations are duly protected and afforded every facility within reason of securing early clearances to enable them to market their pulpwood.

CLERGY LANDS

During the year there were sold 320 acres for \$202.50 and there was collected on sales of previous years \$242.61, making a total collection of \$445.11.

COMMON SCHOOL LANDS

There were no sales of these lands during the past year but there was collected on account of previous years' sales—\$1,962.31.

UNIVERSITY LANDS

The number of acres of these lands sold during the year was 657.44 for \$328.35 and there was collected on account of sales of previous years \$411.60, making total collections of \$739.95.

CROWN LANDS

The total acreage sold for agricultural, townsite and tourist purposes during the year was 86,220.10 acres for \$106,446.81, and there was collected on account of sales of previous years \$6,658.22, making total collections of \$113,105.03.

The total number of acres leased for various purposes was 38,507.27 for \$10,136.58 and there was collected on lands leased in previous years \$104,470.14, making a total collection of \$114,606.72. (See Appendix No. 3.)

MILITARY GRANTS

During the year twelve certificates were surrendered and two patents were issued. Under the Act approximately 13,998 certificates were issued and of these 1,033 are still outstanding.

The above has no reference to the special privilege accorded returned Canadian overseas soldiers of the Great War, who are entitled to acquire, free of charge, a farming location in Northern Ontario, subject, however, to all settlement regulations. Fifty-nine returned men took advantage of this opportunity during the year. Because of failure to comply with the regulations, sixty-seven, previously located under these regulations, forfeited their locations, which is an improvement on the previous year when seventy-two locations were cancelled.

TOURIST LANDS

The influx of summer visitors or tourists to our provincial parks and quiet retreats continues to grow. With our improved highways, well stocked lakes, wooded reserves and attractive stopping places, the tourist is becoming better acquainted. The great Algonquin Park, the Mecca of visitors annually from many lands, has a large patrol staff of efficient rangers and guides to see that law and order are duly enforced and to extend courtesy to and co-operate with transients within the Park limits.

At Rondeau Park, in Kent County, over 250 cottages are constantly occupied for the summer months and of these a large percentage is from our American friends to the south. Facing the lake on one side, with beautiful Rondeau Bay on the other, and a stately mixed growth of timber between this park of 7,000

acres is a most entrancing spot. The red deer, Canada goose, wild turkey and other forms of wild life, as well as a gorgeous array of domesticated pheasants, delight the daily visitor.

Those seeking the long, solitary canoe route retreats with abundance of all forms of wild animal and game life, take to Quetico Park in the District of Rainy River, on the Minnesota border. Here the game fish are found in copious numbers and the densest stands of towering white pines. Lakes without number beckon the health seeker, the summer traveller, the camper, the angler or the hunter—Timagami in Nipissing, Ramsay in Sudbury, Remi in Cochrane, Lake of the Woods in Kenora, and a host of others in the Districts of Algoma, Thunder Bay, and Patricia. There is no portion of this continent so lavishly endowed by Nature for the satisfaction of human desires as Ontario, who with open arms ever extends an invitation to all to enjoy its charms. (For tourist sales see Appendix No. 12.)

RESERVED AREAS

Special consideration has been given to the necessity of centralizing settlement and discouraging the practice of applying for farming areas in remote sections and in zones more adapted to mining, forestry or other purposes. Intensive efforts are being directed along lines of actually segregating areas for their exclusive retention for forest development. Many of the old areas in certain parts opened years ago for farming, without any scientific or systematic investigation to determine their potentialities, have been in whole or in part acquired and abandoned. Isolated settlement throughout such areas is still, under exacting conditions, being attempted, but the general results are not encouraging.

To attempt any system of transplanting indigent settlers to more productive areas would incur problems difficult of solution, notwithstanding the obvious justification of such action. Yet the importance of the subject warrants careful survey on the part of the Government with a view to providing means of saving future generations from similar consequences. It may be found necessary to acquire occupied pockets or isolated lots of semi-productive land in townships more conducive to production of timber than farm wealth and then hold such townships for the particular purpose of natural reforestation.

It is worthy of note that sane measures have been adopted and wise practices followed for some time in the Department in dealing with requests for locations in doubtful sections, and in this way the practical exemption of large tracts of land from the operation of the Sale Regulations is made more easy. Provision is being made for extending our line of inquiry and collating additional data upon which reservations may be made and adequate restrictions fixed.

Departmental officials in outlying sections and those through whom appeals are so insistently presented for individual lots or for the opening of certain areas generally conceded to be primarily unfit for agriculture, will be especially asked to suppress local prejudices and visualize the problem from a provincial point of view. Much is heard during this great post-war reconstruction period of stabilizing the standard of currency in certain countries. No finer opportunity of permanently stabilizing Ontario finances lies than in perpetuating her timber wealth by rigidly enforcing the policy of retaining burnt-over and untillable sections for rehabilitation by Nature and, where necessary, by artificial planting. Hereafter greater consideration shall be given to the so-called wood lot application, which is so often made apparently for the exclusive gradual use of the

individual settler, who, after acquiring possession, entirely denudes it of the timber and then abandons it. Some working arrangement may have to be followed by which limited cordage may be had on reasonable terms by real substantial settlers. Pasture lots are not infrequently acquired as such and later on exploited for the little timber or wood thereon. Bona fide ranchers or settlers are equitably treated and need have no fear of being discriminated against, but the land grabber, under the affected air of a hardy toiler of the soil, will be more carefully considered and his application hereafter more intimately scrutinized.

The withdrawal of a given area from sale and allocating it for a provincial forest does not exempt its use for recreational purposes such as hunting, fishing, summering, etc. Reasonable opportunities will be afforded those in pursuit of pleasure and health to obtain parcels by license or lease within certain restricted zones.

In segregating and setting areas aside as provincial forest reserves the Department aims:

- (1) To provide protection for, and maintenance of, growing timber under advanced scientific management.
- (2) To foster the growth of timber areas adapted for such and not suitable for agriculture.
- (3) To conserve the source of our water supply for hydro power and other purposes.
- (4) To protect the wild life of the Province and produce breeding grounds for surrounding areas.
- (5) To furnish opportunities for uninterrupted nature study and experimental forestry.
- (6) To enlarge the health and recreation centres of the Province.
- (7) In short, to aid Nature in perpetuating her wealth that it may be judiciously developed for the benefits of present and future generations.

SURVEYS AND WATER POWERS

Important township outlines and base and meridian lines were run in the northwest part of the Province. The Red Lake mining trek, with its consequent myriad of recorded claims and possible additional interest in contiguous territory later on, caused very substantial surveys to be undertaken the past summer.

Expectations with regard to the aerial photography to be undertaken by the Topographical Survey Branch of the Department of Interior in collaboration with ground control parties of our Survey Service were not fully realized; yet important work of this character was carried on in the northwestern part of the Province by the Dominion Government, particularly in the Red Lake, Woman Lake, and Lake Nipigon sections. The aerial photographic mapping was carried on in co-operation with the geological and survey divisions of Ontario.

Important survey lines were run and ground controls established by Ontario in the Quetico Park region in Rainy River District under the directions of the Survey Branch and this ground work will, it is expected, be utilized the coming flying season by Dominion engineers in extending their aerial photography and direct mapping of countless lakes and other information for the service of the public. (See Appendices Nos. 15 to 28.)

A number of prime areas suitable for summer purposes were subdivided, valued and listed for sale, and these areas will be catalogued in a new publication to be issued the coming summer.

The water power industry of Ontario, the result of the extended vision and engineering skill of her own public men, has reached tremendous proportions, the Hydro-Electric System, based on the principle of public ownership and power at cost, being world-wide in its reputation. These natural power resources are under the jurisdiction of this Department and the policy is to regard them as the inalienable right of the people. Consequently no powers are sold, the Crown merely leasing them under terms and conditions compatible with the situations obtaining and the necessity of developing our natural wealth. In addition to the programme followed by the Hydro Commission during the past year, covering the enlargement of Nipigon plant to 72,000 horsepower and negotiations for Gatineau power, developments were commenced by the Spruce Falls Company at Smoky Falls on the Mattagami River some sixty miles north from Kapuskasing on the Transcontinental, where approximately 70,000 horsepower will be provided. The Backus-Brooks interests have been proceeding to a development of some 37,000 horsepower on the Seine River in the Rainy River District, which will augment the supply of the Fort Frances Paper Mill, the capacity of which has been increased to 250 tons daily.

Renewed interest has been shown in the power on the Michipicoten River in the Algoma District, where, due to an expected impetus in the mining district, demands for hydro-electric energy are growing.

With the completion of the new installations now under construction, Ontario will continue to hold its high status as the power-producing province of Canada.

LOGGING INDUSTRY

The somewhat continued uncertain demand for and the keen outside competition in pine and spruce lumber was reflected in the cut for the last logging season. While building operations in varied localities showed healthy activity, lower grade material and imported western and southern products appreciably displaced Ontario's high grade red and white pine and spruce.

Ontario operators in this class of timber, to protect themselves against the unstable market and the possibility of holding over large stocks that mean added carrying charges and uncontrollable overhead, naturally limited their bush output. Thus the pine cut (including jack pine) for the season just closed was less by 70,000,000 feet than for the preceding year, while the other classes of sawlogs were subject to a decrease of approximately 17,000,000 feet.

There was also a noticeable decrease in the production of railway ties from Crown areas, only some 1,800,000 against 2,700,000 for the season of 1924-25.

The general restrictions of such operations were seriously reflected in the timber revenue and at the present moment a survey of the conditions does not warrant the assurance of any sudden improvement. The consequence is that some hesitation is shown by certain large producers in entering upon very extensive operations. Others have decided for various reasons to refrain from putting gangs in the bush and to wait for less speculative periods. (See Appendix No. 8.)

PULPWOOD OPERATIONS

While timber operators found it necessary to restrict their cut the pulpwood dealers and a number of limit holders increased their cordage over the previous year by 50 per cent., this increase assisting very materially in counteracting the adverse effect of reduced operations in other lines.

The pulpwood industry, with its pulp and newsprint production, has done much towards improving international trade balances and giving a stability to Ontario commercial development. From now on the demand for pulpwood for home consumption must necessarily grow. The extension to present plants and the proposal for additional ones are vitalizing factors in maintaining the market for the settler and the small pulpwood limit holder, while the clear-cut policy of the Government, as indicated in new agreements to regularly allocate the areas and designate the size and type of timber to be cut, is conducive to permanency.

Substantial additions are being made to the Fort Frances paper mills which mean doubling the output to 250 tons of paper daily.

Important progress is being made at the head of the lakes around Port Arthur, Nipigon and Fort William, where the four outstanding firms, Provincial Paper Mills, Nipigon Corporation, Thunder Bay Company, and Fort William Paper Company, are making extensive additions which on completion will make this section probably the most important paper producing centre in the world.

Under the agreements made, increases in capital investment at this point alone will total over \$22,000,000; in employees over 1,300 in the mills alone and over 7,000 in the bush.

Then on the Transcontinental, the Spruce Falls Company have just completed a logging railway and transmission right-of-way for sixty miles from the railway north to Smoky Falls, where they propose to develop hydro-electric power to run the paper mill at Kapuskasing, the capacity of which is being increased from 115 to 550 tons of newsprint per diem.

The effect of such a huge development in this new section may be gauged when it is realized that this firm, when their extensions are completed and the mill in full operation, will employ no less than 700 men in and about the mill and 3,500 in the bush.

During the past year the Howard Smith Paper Mills at Cornwall made large additions to their mill for increased production in the highest grade of note and writing paper and a variety of other products. This mill is one of the very few mills in Ontario consuming poplar pulpwood and the pioneer settler and the owner of poplar lots are finding a new outlet for this type of wood, the market for which has been most restricted.

The Province is fully assured of the continued expansion of the great pulp and paper industry as the Government, in all its new agreements, has insisted on home production to the limit, every cord of our wood going into paper.

Hand in hand with the constantly growing paper industry goes the harnessing and developing of some of the important water powers of the newer parts of the Province, all of which powers remain the property of the Crown, leases covering their use amply protecting the public against monopolistic rates for municipal and individual purposes; railway tonnage is increased, the labour market improved, and a continued commercial prosperity guaranteed.

MILL LICENSES

Number of Mill Licenses issued October 31st, 1925, to October 31st, 1926—777. Of this number 499 paid no license fees, as the daily capacity of the mills was less than 10,000 feet B.M. Of the remaining 278, 168 were for saw mills, 39 pulp and paper mills, 10 lath mills, 24 shingle mills, 2 veneer mills, 23 stave, heading and hoop mills, 3 tie mills, and 9 rossing mills.

TIMBER SALES

Exclusive of the pulp concessions proper, covered by special agreements in pursuance of advertised conditions and public competition, there were forty-four areas sold during the fiscal year; fifteen of these each contained one square mile or less, while the other twenty-nine aggregated 373 square miles. In this acreage practically every district was represented and every type of producer, from the white pine operator and tie maker to the lath man and pulp and paper manufacturer. White pine ranged in price from \$6 to \$16 per thousand feet B.M., jack pine from \$2.50 to \$18, the latter price being no doubt an inflated one. The jack pine bids were very substantial and gave evidence of the desire of tie operators to fill railway contracts. Pulpwood stumpage varied from simple dues of \$1.40 a cord in the case of spruce to \$3.95; balsam from \$1 to \$2.95; and other classes of pulpwood, poplar and jack pine from 40c. to 65c. (See Appendix No. 29.)

The Hawk Lake Company acquired some sixty square miles in the Cochrane District on the Temiskaming & Northern Ontario Railway extension, where a sawmill is now in operation and the company will invest heavily in robbing plants and drum barkers. This industry will play an important part in providing freight for this new portion of the Provincial Railway.

The Beaver Wood & Fibre Company, with an enlarged paper outfit at Thorold, Ontario, secured the townships of Ottaway and Duff in Cochrane District on the Transcontinental Railway and will ship their wood over the Temiskaming & Northern Ontario Railway and other lines to their Thorold plant. New sawmills and drum barking installations in the vicinity of these townships are expected to result within the next year.

Special pulpwood agreements were consummated between the Government and successful tenderers in outstanding instances. The poplar on an area of 350 square miles, partly in Sudbury, Timiskaming and Cochrane, was disposed of to C. Howard Smith for supplies to the Cornwall Paper Mill, where very important extensions have been made and plans are in progress for a more extended development involving varied products. (See Appendix No. 29.)

The Spruce Falls Company augmented their previous holdings by securing new areas in the watersheds of the Kapuskasing, Ground Hog and Mattagami Rivers and have already taken advanced steps towards a huge expansion to meet their obligations. A huge water power development at Smoky Falls, a sixty-mile logging railway from the Falls to Kapuskasing and an ultimate daily output of 500 tons of paper have been assumed and in part already completed.

The Nipigon Corporation, Limited, with plant at Nipigon, the Thunder Bay Company and Provincial Paper Mills, with plants at Port Arthur, and the Fort William Paper Company, Limited, with plant at Fort William, acquired separate and distinct cordage areas in the Nipigon watershed and have to date proceeded along lines of extending their industries in accordance with the stipulations laid down by the Crown.

As announced in last year's report, which presaged the agreements, the expansion of the paper output will redound not only to the industrial and commercial progress of the regions immediately affected, but to the general prosperity of the whole Province and the Dominion itself, because of the buoyancy it gives to international trade and the stability to the Canadian dollar. (See Appendices Nos. 30 to 35.)

FOREST CRUISING AND ESTIMATING

All small areas of township size offered for sale from time to time are intensively cruised and estimated by rangers, directly attached to the offices of the Crown Timber Agents, who are directed to show the type, quantities and qualities of the timber or wood thereon.

Information on the cutting and driving possibilities is tabulated as a guide to the Department in fixing its upset price for competition.

The large areas comprised in pulp concessions are carefully mapped by trained officials of the Forestry Branch, and the ground men, working in close conjunction with the air men, make systematic cruises and scientific calculations to determine the approximate cordage on a given area. Such work was continued during the year and new regions were in detail mapped and estimated as to type, quantities and growth of the timber.

The time saved by using the aerial mapping system in collaboration with ground foresters is an important factor in furnishing inventories of our resources. The Department may without fruitless effort intelligently consider industrial propositions on their own merits. The speculative feature of promotions is largely eliminated and sane business conclusions readily reached. (See Appendix No. 36.)

FOREST FIRE PROTECTION

The season as a whole was, like the two preceding seasons, particularly favourable for forest fire control. There were no really prolonged and serious periods of hazard so conducive to large fires, the rainfall throughout the summer months being great in frequency rather than in quantity and the staff was able to control most fires before any material loss was occasioned. The general public, too, is taking more interest in fire protection, resulting in the reporting of fires to the rangers and enabling them to extinguish many before getting beyond control.

In the outlying regions of the Province the detection of fires was carried out largely through the use of aircraft and in the Red Lake mining area the transportation of fire fighters and fire-fighting equipment was done almost entirely by aircraft.

The total area of land burned over was 88,374 acres, the smallest acreage since 1918. Of this amount 14.4 per cent. was timber land, 25.2 per cent. land which has been logged over, 32.7 per cent. second growth, and 27.7 per cent. barren and grass lands.

Great quantities of slash, particularly in the Clay Belt region, were burned under permits issued by the fire rangers, very few of these permit fires getting beyond control.

The supply of fire-fighting equipment was augmented by the purchase of additional fire-fighting units, tents, blankets, canoes, motor boats and motor trucks. In municipal fire protection speed in getting to a fire with up-to-date fire-fighting apparatus is an essential factor in fire control and this is no less true in forest fire protection.

The total cost of forest protection for the year was somewhat less than in the previous year, the cost of actual fire fighting being half what it was in 1925. (See Appendix No. 36.)

REFORESTATION

The work at the three chief nurseries was carried on this year along broader lines, resulting in an increased output of nursery stock. The transplant nurseries at the Sand Banks and Kemptville have been restocked for local distribution. One new county forest was established and planting work begun. Seed collecting was the most successful in the history of the Department. Large quantities of native species are on hand for use in urgent reforestation projects. For a detailed report of this work. (See Appendix No. 36.)

REVENUE

The forest resources provide by far the largest share of the revenue for the Department, over 90 per cent. of returns being directly due to the operations of the Woods and Forests Branch, the balance to land sales, leases, water power rentals, etc.

The total amount collected was \$4,494,720.03, less by half a million than that of the previous year, 1925, when the largest revenue in the history of the Department was collected. The difference was largely due to reduced cutting operations reflected in both the bonus and timber dues. The sale of lands accounted for \$116,252.40, or 12 per cent. increase over the preceding year. Rentals brought \$116,027.47, and miscellaneous items, including refunds, the remaining revenue. As the outlook for any increased production in the logging or lumbering industry during the ensuing year is not bright any addition to the revenue is not expected. A certain return is expected from the Provincial Land Tax Act, the first returns of which are due and payable on February 1st, 1927. (See Appendix No. 4.)

DISBURSEMENTS

The total expenditures for the year totalled \$2,453,731.84, which excludes those formerly covered in this report under the heading of Colonization Roads and Northern Development. While the Fire Ranging Service cost less by nearly \$200,000 and Forest Ranging by over \$35,000 and other services by lesser proportions, there were counteracting increases in other services. Surveys ran \$27,000 higher, due to extra work in connection with the running of base and meridian lines in the newer portions of Northwest Ontario, particularly in the Quetico Reserve and the Patricia regions. Extra efforts towards removing fire hazards at strategic points and clearing townsites accounted for an increase of slightly over \$16,000.

Refund items comprising two large deposits on timber tenders, not accepted, enlarged the outlay under this vote by \$56,000 over that of last year. Another exceptional expenditure of approximately \$200,000 covered by a special warrant, was required in connection with the return to the Government of two large townships held by the New Ontario Colonization Company, Limited. The agreement in respect of these townships followed a Court judgment declaring invalid the alleged cancellation by the Government of the original agreement made between the Company and the Province in 1912.

For complete statement in itemized form of expenditures see Public Accounts.

APPENDICES

PART I.

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1926

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks
Solicitor's Branch	Hon. James Lyons.....	Minister.....	1923, July 16	\$8,000 00	Resigned March 1st, 1926
	Hon. Wm. Finlayson.....	".....	1926, Oct. 18	8,000 00	
	F. H. Keefer.....	Legislative Secretary for Northern Ontario.....	1923, July 16	6,000 00	
	W. C. Cain.....	Deputy Minister.....	1903, March 1	5,400 00	
	E. J. Zavitz.....	Deputy Minister of Forestry.....	1905, May, 1	4,800 00	
	A. Ferguson.....	Assistant to Deputy Minister.....	1915, Dec. 15	2,800 00	
	M. E. Bliss.....	Senior Clerk Stenographer.....	1909, Aug. 16	1,450 00	
	E. G. Halliday.....	".....	1907, Feb. 21	1,400 00	
	E. Harrison.....	".....	1920, May 14	1,300 00	
	F. E. Titus.....	Solicitor.....	1920, March 2	3,500 00	
Lands Branch	B. Chambers.....	Clerk Stenographer.....	1917, April 24	1,050 00	
	S. Draper.....	Chief Clerk.....	1900, May 1	3,100 00	
	W. R. Ledger.....	Principal Clerk.....	1894, Feb. 15	2,400 00	
	C. E. Burns.....	".....	1897, July 29	2,400 00	
	J. E. Drinkwater.....	Senior Clerk.....	1915, Oct. 19	2,100 00	
	J. B. Proctor.....	".....	1897, Jan. 15	2,000 00	
	W. S. Sutherland.....	".....	1900, Mar. 18	2,000 00	
	A. E. Roe.....	".....	1906, Oct. 16	2,000 00	
	A. E. Robillard.....	".....	1894, May 4	1,900 00	
	S. A. Platt.....	".....	1905, June 12	1,900 00	
Surveys Branch	F. A. Lucas.....	".....	1906, Dec. 18	1,900 00	
	E. F. O'Neil.....	Senior Clerk Typist.....	1902, July 7	1,400 00	
	B. M. Benson.....	Senior Clerk Stenographer.....	1909, May 25	1,400 00	
	E. Hills.....	".....	1912, July 2	1,400 00	
	S. Ross.....	".....	1917, July 9	1,400 00	
	C. O'Connor.....	Engraving Clerk.....	1907, Oct. 16	1,200 00	
	L. V. Rorke.....	Director of Surveys.....	1909, May 1	4,800 00	
	J. Hucheson.....	Inspector of Surveys.....	1913, April 1	3,600 00	
	H. C. Smith.....	Cartographer.....	1919, Dec. 12	2,700 00	
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct. 16	2,600 00	
	J. Work.....	Principal Clerk.....	1909, May 18	2,300 00	
	E. M. Jarvis.....	Senior Clerk.....	1897, April 25	2,000 00	
	H. Treeby.....	Map Draughtsman.....	1896, June 25	2,000 00	
	F. E. Blanchet.....	".....	1906, May 15	2,000 00	
	A. Leaman.....	".....	1907, Sept. 12	2,000 00	

Forestry Branch.....	Sidney Smith.....	Clerk.....	1923, Sept. 7	850 00	
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July 21	1,400 00	
	C. R. Mills.....	Forester.....	1921, Mar. 28	3,450 00	
	F. S. Newman.....	"	1913, Oct. 1	2,450 00	
	N. L. Rogers.....	Senior Account Clerk.....	1911, Aug. 1	2,000 00	
	G. W. Harris.....	Senior Clerk.....	1906, Sept. 1	1,700 00	
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May 1	1,400 00	
	J. Bald.....	"	1913, June 12	1,400 00	
	A. S. McKyes.....	Clerk Stenographer.....	1921, May 9	1,100 00	
	M. H. O'Brien.....	"	1922, May 22	1,050 00	
Woods and Forests Branch.....	J. Houser.....	Head Clerk.....	1905, July 17	2,850 00	
	H. D. Gillard.....	Principal Clerk.....	1897, Dec. 6	2,300 00	
	W. F. Trivett.....	"	1900, June 25	2,300 00	
	A. H. O'Neil.....	Senior Clerk.....	1906, July 19	1,900 00	
	S. D. Meeking.....	"	1910, Feb. 8	1,850 00	
	E. H. Teller.....	"	1915, Sept. 27	1,800 00	
	E. H. Squire.....	Clerk.....	1916, Jan. 4	1,500 00	
	E. F. Quigley.....	Junior Clerk.....	1921, May 4	1,025 00	
	E. C. Armer.....	Senior Clerk Stenographer.....	1909, Aug. 6	1,300 00	
	D. H. Hamlin.....	"	1922, June 1	1,300 00	
Accounts Branch.....	J. Ferguson.....	"	1919, Aug. 4	1,050 00	
	H. M. Lount.....	Accountant.....	1903, Oct. 1	3,000 00	
	C. J. Clarke.....	Principal Account Clerk.....	1905, Aug. 9	2,100 00	
	W. A. Burritt.....	Senior Clerk.....	1907, Sept. 24	1,900 00	
	R. Gordon.....	Clerk.....	1912, July 30	1,600 00	
	C. C. Johnson.....	"	1921, May 16	1,500 00	
	C. Bowland.....	Senior Clerk Typist.....	1908, July 9	1,400 00	
	M. A. Whyte.....	Clerk Stenographer.....	1921, June 1	1,100 00	
	Files Branch.....	S. K. Burdin.....	Head Clerk.....	1916, April 6	2,500 00
		C. Dies.....	Clerk.....	1905, June 14	1,700 00
F. Samuels.....		Senior Clerk.....	1903, Dec. 5	1,700 00	
J. T. Lee.....		Clerk.....	1917, June 25	1,700 00	
S. Mulholland.....		"	1918, May 6	1,200 00	
W. C. St. John.....		"	1906, July 9	1,500 00	
N. B. Mathewson.....		"	1915, May 7	1,500 00	
H. Brophy.....		Senior Clerk Messenger.....	1915, May 7	1,500 00	
			1898, Oct. 1	1,300 00	

Transferred to Insurance Dept., May 16th, 1926

Appendix No. 2

List of Agents for the year ending October 31st, 1926

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
LANDS AGENTS					
Alexander, James A...	Fort Frances.....	Part Rainy River District.....	1924, Nov. 1	.....	For salary see Crown Timber Agents
Arthurs, E.....	Espanola Mills.....	" District of Sudbury.....	1915, June 1	\$500 00	
Baker, R. H.....	Minden.....	" Haliburton.....	1907, Oct. 1	350 00	
Blank, Frank.....	Wilno.....	" of Renfrew County and North Part Nipissing District.....	1921, April 1	500 00	
Both, C.....	Denbigh.....	Part of Frontenac, Lennox and Addington.....	1905, Oct. 20	200 00	
Bresnahan, John.....	Hearst.....	Part District of Cochrane.....	1924, April 28	3 00	
Brown, John.....	Markstay.....	" " Nipissing and Sudbury.....	1916, July 3	600 00	per day
Cameron, Wm.....	Stratton Station.....	" " Rainy River.....	1911, May 8	500 00	
Campbell, Miss I. M.....	Parry Sound.....	" " Parry Sound.....	1914, Nov. 15	500 00	
Dean, Thos.....	Sault Ste. Marie.....	" " Algoma.....	1920, Nov. 18	300 00	Also Homestead Inspector
Dempsey, S. J.....	Cochrane.....	" " Cochrane.....	1911, Feb. 1	1,100 00	
Douglas, W. J.....	Maynooth.....	Hastings County.....	1912, June 1	500 00	Died Nov. 30, 1925.
Ellis, H. J.....	Powassan.....	" District of Parry Sound.....	1909, May 20	500 00	
Fink, J. Arthur.....	Mattawa.....	" " Nipissing.....	1925, May 18	500 00	
Freeborn, J. S.....	Magnetawan.....	" " Parry Sound.....	1905, Nov. 10	500 00	
Fuller, David.....	Bancroft.....	Hastings County.....	1926, Mar. 20	500 00	
Gibson, J. E.....	Dryden.....	District of Kenora.....	1914, Dec. 5	1,200 00	
Grigg, Albert.....	Bruce Mines.....	" " Algoma.....	1925, Sept. 1	900 00	Also Homestead Inspector.
Hales, W.....	Ansley.....	County of Peterborough.....	1911, July 17	250 00	
Holland, H. E.....	Kenora.....	District of Kenora.....	1921, Jan. 1	600 00	Also Mining Recorder.
Hough, John A.....	Matheson.....	" " Cochrane.....	1926, April 20	1,200 00	
McCrea, J. R.....	New Liskeard.....	" " Temiskaming.....	1924, Nov. 15	1,200 00	
McFayden, A.....	Emo.....	" " Rainy River.....	1905, Sept. 8	600 00	Died Sept. 2, 1926.
MacLennan, J. K.....	Sudbury.....	" " Sudbury.....	1905, July 3	700 00	
Marchildon, J. P.....	Sturgeon Falls.....	" " Nipissing and part Sudbury.....	1923, April 27	1 60	per day.
Mills, J. E.....	Matheson.....	" District of Cochrane.....	1921, August 1	1,200 00	Resigned April 7, 1926
Parsons, W. J.....	North Bay.....	" " Nipissing and Parry Sound.....	1908, April 8	1,200 00	

Smith, J. D. C.	Kenora	" District of Kenora.	1924, Nov. 1		For salary see Crown Timber Agents. For salary see Homestead Inspectors.
Sheppard, H. E.	Kapuskasing	" " Cochrane	1909, Feb. 13		
Teasdale, R. A.	Massey	" " Sudbury	1917, July 1	600 00	
Thaw, D.	Emsdale	" " Parry Sound	1919, July 2	500 00	
Trainor, W. J.	Hilton Beach	St. Joseph Island	1925, Sept. 12	300 00	
Watt, F.	Pembroke	Part Renfrew	1923, Sept. 11	300 00	
Wilson, A. N.	Kinmount	" County of Peterborough and Haliburton.	1915, May 6	175 00	
Wilson, S. H.	Port Arthur	" District of Thunder Bay	1921, Nov. 26	1,200 00	
Woollings, Jos.	Englehart	" " Temiskaming	1908, July 13	800 00	
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
<i>Homestead Inspectors</i>					
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec. 1	1,600 00	
Bastien, J. A.	Chelmsford	W. part of Sudbury District	1913, May 12	1,300 00	
Cragg, W. V.	New Liskeard	S. part of Temiskaming District	1913, April 1	1,700 00	
Dean, Thomas	Sault Ste. Marie	Part Algoma District	1908, Aug. 3	900 00	Also Crown Lands Agent
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct. 14	1,100 00	
Grigg, Albert	Bruce Mines	Part District of Algoma	1925, Sept. 1		For salary see Crown Lands Agent
Hough, Wm.	Englehart	Centre part of Temiskaming District	1926, Jan. 18	1,300 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F.	Callander	District of Parry Sound	1920, June 10	1,600 00	
Owens, H. B.	Cache Bay	E. part Sudbury and W. part Nipissing Districts	1918, July 1	1,100 00	
Sheppard, H. E.	Kapuskasing	Part District of Cochrane	1909, Feb. 13	1,800 00	Also Crown Lands Agent
Smith, D.	Cochrane	Part Cochrane District	1912, April 24	1,900 00	
Van Horn, L. E.	Monteith	Part Cochrane District	1920, Jan. 27	1,700 00	
Watson, T. P.	Englehart	Centre part of Temiskaming District	1905, May 10	1,500 00	
Wigle, R. G.	Dryden	Kenora District	1914, June 1	1,600 00	Resigned Dec. 31, 1925
<i>Timber Agents</i>					
Alexander, James A.	Fort Frances	Fort Frances District	1924, Nov. 1	2,500 00	Also Crown Lands Agent
Fletcher, N. B.	Parry Sound	Part Parry Sound and Muskoka District	1923, Dec. 1	1,700 00	
Huckson, A. H.	Sault Ste. Marie	Part District of Algoma	1914, April 1	2,500 00	
Larose, S. C.	Ottawa	Part Ottawa District	1890, May 8	1,800 00	

Appendix No. 2—Continued

List of Agents for the year ending October 31st, 1926

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
MacDonald, S. C.	New Liskeard.....	Part Temiskaming District.	1907, Jan. 1	2,400 00	
McDougall, J. T.	North Bay.	Nipissing and part Sudbury Districts . . .	1908, July 1	2,500 00	
Milway, Jos. H.	Port Arthur.	Part Thunder Bay District.	1924, Nov. 1	2,400 00	
Smith, J. D. C.	Kenora.....	Kenora District.....	1924, Nov. 1	2,400 00	Also Acting Crown Lands Agent
Spence, D. J.	Cochrane.....	Part Temiskaming and Algoma Districts	1920, Dec. 1	2,400 00	
Stevenson, A.	Peterborough.....	Belleville District.....	1905, Oct. 4	1,900 00	
Whelan, Patrick J.	Renfrew.....	Renfrew Agency.....	1924, Nov. 1	2,400 00	
Hartt, J. I.	Orillia.....	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration.....			
Hawkins, S. J.	Toronto.....	Relieving Crown Timber Agent.....	1923, Sept. 4 1905, Aug. 16	4,000 00 2,200 00	

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1926.

Service	Acres sold and Leased	Amount of Sales and Leases	Collections on Sales, Leases, Land, Taxes, etc.
<i>Lands Sold:</i>		\$ c.	\$ c.
Agricultural and Townsites.....	86,220.10	106,446 81	113,105 03
Clergy Lands.....	320	202 50	445 11
Common School Lands.....	.....	.....	1,962 31
University Lands.....	657.44	328 35	739 95
<i>Lands Leased:</i>			
Crown.....	38,421.70	9,201 58	111,744 47
Temagami.....	85.57	935 00	2,862 25
Sand and Gravel.....	.....	.....	8 00
Provincial Land Tax.....	.....	.....	1,412 75
	125,704.81	\$117,114 24	\$232,279 87
Less Revenue Refunds, Appendix No. 5	.....	.....	5,488 36
	125,704.81	\$117,114 24	\$226,791 51

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1926.

Service	\$	c.	\$	c.	\$	c.
LAND COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	72,466	67				
Townsites.....	40,638	36				
			113,105	03		
Clergy Lands.....	445	11				
Common School Lands.....	1,962	31				
University Lands.....	739	95				
			3,147	37		
					116,252	40
<i>Rent:</i>						
Crown Leases.....			100,865	13		
Algonquin Provincial Park.....			4,055	73		
Rondeau Provincial Park.....			6,201	00		
Bruce Beach.....			166	54		
Jordan Harbour.....			456	07		
Temagami Lesses.....			2,862	25		
Sand and Gravel.....			8	00		
Provincial Land Tax.....			1,412	75		
					116,027	47
WOODS AND FORESTS						
Bonus.....			1,381,055	59		
Timber Dues.....			2,335,941	32		
Ground Rent.....			104,748	99		
Fire Protection.....			306,119	51		
Transfer Fees.....			5,001	39		
Mill License Fees.....			834	37		
					4,133,701	17
<i>Parks:</i>						
Algonquin Provincial Park.....			7,854	72		
Rondeau Provincial Park.....			118	47		
Quetico Provincial Park.....			6,974	82		
					14,948	01
Casual Fees.....			2,644	80		
Forest Reserves, Guides' Fees.....			177	00		
					2,821	80
REFUNDS						
Contingencies.....			38	94		
Clearing Townsites.....				40		
Forest Ranging.....			96,721	19		
Fire Ranging.....			7,882	27		
Reforestation.....			1,167	98		
Surveys.....			5,158	40		
					110,969	18
					4,494,720	03
Less Revenue Refunds, Appendix No. 5.....					8,251	09
					4,486,468	94

Appendix No. 5

Statement of Revenue Refunds of the Department of Lands and Forests for the year ending
October 31st, 1926

Service	\$	c.
Bonus and Timber Dues.....	1,719	23
Mill License Fees.....	11	00
Forest Ranging—Scalers' Wages.....	1,031	50
Crown Lands Sales.....	3,946	69
Algonquin Park—Rent.....	50	00
Bruce Beach—Rent.....	234	89
Licenses of Occupation—Rent.....	1,256	78
Casual Fees.....	1	00
	8,251	09

Appendix No. 6

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1926, which are considered as Special Funds

Service	\$ c.	\$ c.
<i>Clergy Lands:</i>		
Principal.....	246 45	
Interest.....	198 66	
		445 11
<i>Common School Lands:</i>		
Principal.....	956 99	
Interest.....	1,005 32	
		1,962 31
<i>University Lands:</i>		
Principal.....	512 95	
Interest.....	227 00	
		739 95
		3,147 37

Appendix No. 7

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1926.

Service	\$	c.
AGENTS' SALARIES AND DISBURSEMENTS.....	99,454	22
ALGONQUIN PROVINCIAL PARK.....	35,745	93
ALLOWANCE SCHOOL SECTION, SOUTH WALSINGHAM.....	150	00
ALLOWANCE SCHOOL SECTION, TOWNSHIP OF VESPRA.....	250	00
BOARD OF SURVEYORS.....	200	00
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....	42,119	90
CONTINGENCIES.....	72,514	32
DISPLAY AT TORONTO EXHIBITION.....	2,598	52
FIRE RANGING.....	992,860	73
FOREST RANGING.....	407,279	28
FOREST RESERVES.....	4,620	95
GRANT TO CANADIAN FORESTRY ASSOCIATION.....	3,000	00
INSURANCE.....	5,367	36
LEGAL FEES AND EXPENSES.....	5,100	00
MOVING EXPENSES OF OFFICIALS.....	147	92
OTTAWA AGENCY.....	2,636	82
QUETICO PROVINCIAL PARK.....	15,905	20
REFORESTATION.....	206,335	29
REFUNDS—MISCELLANEOUS.....	102,207	68
RONDEAU PROVINCIAL PARK.....	9,298	69
SURVEYS.....	99,725	99
UNFORSEEN AND UNPROVIDED.....	1,416	80
VETERANS' COMMUTATION.....	650	00
WORKMEN'S COMPENSATION.....	646	52
SPECIAL WARRANTS New Ontario Colonization Co.....	198,284	75
STATUTORY: Keefer, F. H.....	2,604	08
	2,311,120	95

Appendix

FORESTRY

Statement of Timber and Amounts accrued from Timber Dues, Ground Rent,
QUANTITY AND

PROVINCE OF ONTARIO	Area covered by timber licenses	Saw Logs					
		Red and White Pine		Jack Pine		Other Logs	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet
	18,096 $\frac{1}{4}$	4,695,671	192,810,559	3,991,296	66,694,775	2,402,892	63,528,694

STATEMENT OF TIMBER

PROVINCE OF ONTARIO	Lath- wood	Cedar Posts	Telegraph Poles	Pulpwood	Railway Ties	Waney Pine		Lagging
	Cords	Pieces	Pieces	Cords	Pieces	Pieces	Cubic Feet	Pieces
	2,182	83,009	13,471	642,774	1,827,496	3,307	183,754	2,171

No. 8.

BRANCH

Fire Protection and Bonus, etc., during the year ending 31st October, 1926

DESCRIPTION OF TIMBER

Boom and Dimension Timber						Piling		Cordwood		Tan-bark
Red and White Pine		Jackpine		Other				Hard	Soft	
Pieces	Feet	Pieces	Feet	Pieces	Feet	Lineal Feet	Board Measure	Cords	Cords	Cords
36,951	6,344,688	12,431	1,154,391	21,209	2,023,630	77,987	762,256	6,957	49,526	3,111

—Concluded

Amounts Accrued

Timber Dues	Bonus	Trespass	Interest on Dues and Bonus	Ground Rent	Transfer Fees	Fire Tax	Mill License Fees	Annual Bonus	Total Accruals
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,716,637 16	1,479,996 95	61,926 92	114,418 97	111,256 48	5,001 39	311,497 02	834 37	6,860 00	3,746,502 34

NOTE—Total amount received from all Forest Sources \$4,133,701.17 See Appendix No. 9.

Appendix No. 9

Statement of Revenue collected during the year ending October 31st, 1926:

Timber Dues.....		\$2,335,941 32
Bonus.....		1,381,055 59
Fire Protection.....		306,119 51
Ground Rent.....		104,748 99
Transfer Fees.....		5,001 39
Mill License Fees.....		834 37
		<hr/>
		\$4,133,701 17
Timber Dues.....	\$2,117,980 73	
Int. Timber Dues.....	100,260 59	
Timber Sale Deposits.....	117,700 00	
	<hr/>	
		\$2,335,941 32
Bonus.....		1,381,055 59
Fire Protection.....		306,119 51
Ground Rent.....	\$104,071 09	
Int. Ground Rent.....	677 90	
	<hr/>	
		104,748 99
Transfer Fees.....		5,001 39
Mill License Fees.....		834 37
		<hr/>
		\$4,133,701 17

Appendix No. 10

ACREAGE UNDER LICENSE

The area covered by Timber Licenses where the holder pays Regulation Ground Rent and Fire Charges, at the end of the fiscal year, 1926, was 18,096 $\frac{1}{4}$ square miles.

The number of Crown Timber Licenses issued for the license season of 1925-26 was 964.

Appendix No. 11

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Free Grant Townships during the year ending 31st October, 1926.

Township	District or County	Agent	Persons located	Area located	Purchasers	Area sold	Persons cancelled	Area resumed	Patents issued	Area patented
Baxter.....	Muskoka.....	W. G. Gerhart, Bracebridge..	1	5	1	78	1	83	3	522
Brunel.....	"	"	1	100			3	278		
Cardwell.....	"	"							3	361
Chaffey.....	"	"	1	99			2	300		
Draper.....	"	"								
Franklin.....	"	"								
Freeman.....	"	"	1	163			1	200	1	121
Macaulay.....	"	"							2	227
Medora.....	"	"							1	52
Morrison.....	"	"							2	221
Muskoka.....	"	"	1	134			2	330	1	99
McLean.....	"	"							2	255
Oakley.....	"	"							1	88
Ridout.....	"	"							3	310
Ryde.....	"	"	1	145			2	212	2	177
Sherbourne.....	Haliburton.....	"					1	99	2	298
Sinclair.....	Muskoka.....	"	2	368			2	300	2	200
Stephenson.....	"	"	1	100			1	100	2	201
Stisted.....	"	"							1	177
Wood.....	"	"			1	3/10	2	219	1	196
Watt.....	"	"	1	100			1	100		
Blair.....	Parry Sound.....	Miss I. M. Camp- bell, Parry Sound								
Burpee.....	"	"	1	200			2	300		
Carling.....	"	"			1	13			1	213
Christie.....	"	"	1	178			1	100	1	232½
Conger.....	"	"								
Cowper.....	"	"								
Ferguson.....	"	"								
Foley.....	"	"							1	100
Hagerman.....	"	"							2	265
Herweg.....	"	"			1	39			1	165
Humphrey.....	"	"								
McConkey.....	"	"								
McDougall.....	"	"	2	200	1	10	3	438	1	100
McKellar.....	"	"					1	138½	1	100
McKenzie.....	"	"								
Monteith.....	"	"			1	72	3	627	3	379
Wilson.....	"	"	1	99			7	954	3	379
									2	200
Chapman.....	Parry Sound.....	Dr. J. S. Freeborn, Maganetawan..								
Croft.....	"	"	1	100			1	82	2	261
Gurd.....	"	"					2	200	1	123
Lount.....	"	"	3	301	1	1	4	492		
Machar.....	"	"	1	197			1	100	2	322
Mills.....	"	"	3	297			1	198	4	592
Pringle.....	"	"					2	261	3	549
Ryerson.....	"	"								
Spence.....	"	"					1	200	1	200
Strong.....	"	"							1	100
					1	54	1	200	2	322

Appendix No. 11—Continued

Township	District or County	Agent	Persons located	Area located	Purchasers	Area sold	Persons cancelled	Area resumed	Patents issued	Area patented
Armour.....	Parry Sound...	David Thaw, Emsdale.....	2	193			3	301	2	286
Bethune.....	"	"					2	237		
Joly.....	"	"	1	100					4	901
McMurrich.....	"	"			1	3			2	308½
Proudfoot.....	"	"								
Hardy.....	"	"			1	4				
Himsworth.....	"	"	1	101			6	700	3	400
Laurier.....	"	"	1	100	1	19	1	100	1	218
Nipissing.....	"	"	5	499	1	3	3	399	11	105
Patterson.....	"	"			1	16			3	316
Bonfield.....	Nipissing.....	W. J. Parsons, North Bay....			3	233	1	81	1	232½
Boulter.....	"	"	1	102	1	2	1	100		
Chisholm.....	"	"			1	99½	2	333	2	208
Ferris.....	"	"	3	300			3	270	4	569
Anson.....	Haliburton...	R. H. Baker, Minden.....								
Glamorgan....	"	"					1	142	1	100
Hindon.....	"	"							1	102
Lutterworth....	"	"	1	100			1	98	1	35
Minden.....	"	"					1	95	3	321
Snowden.....	"	"	1	198			1	198	1	117
Stanhope.....	"	"					2	324	4	218
Anstruther....	Peterborough..	Wm. Hales, Apsley.....							1	100
Burleigh, N.D..	"	"								
Chandos.....	"	"	1	100			1	4½	1	100
Methuen.....	"	"			1	2				
Cardiff.....	Haliburton...	A. N. Wilson, Kinmount.....					5	528	1	195
Cavendish.....	"	"					2	205		
Galway.....	"	"			2	128			3	729
Monmouth.....	"	"	1	171			1	171	6	888
Bangor.....	Hastings.....	David Fuller, Bancroft.....	1	84					1	100
Carlow.....	"	"	1	92			1	92	1	303
Cashel.....	"	"							1	100
Dungannon....	"	"	4	445			3	319½	1	200
Faraday.....	"	"	1	99	1	102	4	404	1	144
Herchel.....	"	"	2	200			1	100		
Limerick.....	"	"	1	100	1	6			2	106
Mayo.....	"	"							1	150
Monteagle.....	"	"	2	197	1	4	2	197	1	96½
McClure.....	"	"	1	198	1	28	1	198	1	200
Wicklow.....	"	"	1	196½	2	111				
Wollaston.....	"	"								
Algona South..	"	"							2	198
Brudenell.....	Renfrew.....	Frank Blank, Wilno.....	5	500			5	450	6	952
Hagarty.....	"	"	2	167½			1	66½	5	613
Jones.....	"	"							2	38½

Appendix No. 11—Continued

Township	District or County	Agent	Persons located	Area located	Purchasers	Area sold	Persons cancelled	Area resumed	Patents issued	Area patented
Lyell.....	Renfrew.....	Frank Blank,	3	250	1	3	7	1,071	3	505
Lyndoch.....	"	Wilno.....	2	198			2	208	3	353
Matawatchan.....	"	"							1	52
Radcliffe.....	"	"	1	100	1	100	1	100	5	960 $\frac{1}{4}$
Raglan.....	"	"	3	240			3	315	1	100
Richards.....	"	"	3	217					3	399 $\frac{1}{2}$
Sebastopol.....	"	"							2	300
Sherwood.....	"	"	5	479 $\frac{1}{2}$	1	100	2	251	6	928 $\frac{1}{4}$
Algona North.....	Renfrew.....	Finlay Watt, Pembroke.....	1	45			1	45	1	45
Alice.....	"	"							6	700
Buchanan.....	"	"							1	100
Fraser.....	"	"	1	70			1	70	2	100
Head.....	"	"	3	359			1	95	1	163
Mara.....	"	"							1	109 $\frac{1}{2}$
Petawawa.....	"	"	1	100	1	100	1	100	3	301
Rolph.....	"	"	1	99			2	199	3	442
Wilberforce.....	"	"							1	192
Wylie (Pt.).....	"	"							2	299
Calvin.....	Nipissing.....	J. A. Fink, Mattawa.....			1	100			2	193
Cameron Pt.	"	"	2	241			2	248	6	606
Lauder.....	"	"	2	209			3	319		
Mattawan.....	"	"	3	303			3	361	2	250
Papineau.....	"	"	7	657	1	67	5	500	3	344
Park.....	Algoma.....	Thomas Dean, Sault Ste. Marie..								
Prince.....	"	"							1	160
Galbraith.....	"	"			1	82	3	520	1	152
Lefroy.....	Algoma.....	Albert Grigg, Bruce Mines.....	2	158	2	158				
Aberdeen.....	"	"			2	28	1	156 $\frac{1}{2}$	1	160 $\frac{1}{2}$
Hilton.....	Algoma.....	W. J. Trainor, Hilton Beach.....	4	359			5	517	1	269
Jocelyn.....	"	"	2	200	1	75	2	200	3	328
Baldwin.....	Sudbury.....	Edward Arthurs, Espanola.....	3	463 $\frac{1}{2}$						
Merritt.....	"	"	1	154					3	296
Blake.....	Thunder Bay.....	S. H. Wilson, Port Arthur.....	5	777			1	160		
Conmee.....	"	"	3	384 $\frac{1}{2}$	1	86 $\frac{1}{2}$	2	216 $\frac{1}{2}$	1	265
Crooks.....	"	"	1	230			1	150		
Dawson Rd.....	"	"	4	418	3	70 $\frac{1}{2}$	3	263	5	645 $\frac{3}{4}$
Dorion.....	"	"	2	320			3	476	3	296 $\frac{1}{2}$
Gillies.....	"	"	1	79	2	165 $\frac{1}{2}$	2	241 $\frac{1}{2}$	2	488
Gorham.....	"	"	7	986 $\frac{1}{2}$	2	157 $\frac{1}{2}$	1	170	1	183
Lybster.....	"	"	2	239 $\frac{1}{2}$			2	319	2	236
Marks.....	"	"	9	1425			3	475		
McGregor.....	"	"								
McIntyre.....	"	"								
Oliver.....	"	"	2	323	1	3	1	163	2	326
O'Connor.....	"	"	1	160 $\frac{1}{2}$			1	160 $\frac{1}{2}$	2	322
Paipoonge, N.R.	"	"							2	173 $\frac{1}{2}$

Appendix No. 11—Continued

Township	District or County	Agent	Persons located	Area located	Purchasers	Area sold	Persons cancelled	Area resumed	Patents issued	Area patented
Paipoonge, S.R.	Thunder Bay	S. H. Wilson,								
Pardee	"	Port Arthur					1	160	1	152 ³⁸ / ₁₀₀
Pearson	"	"	1	174			7	1,135 ¹ / ₂	6	959 ¹ / ₂
Scoble	"	"	8	1,039 ¹ / ₂	2	160	3	396	1	148
Sterling	"	"	6	959			3	382	12	1,700 ¹ / ₂
Strange	"	"	6	746 ¹ / ₂	1	2 ¹ / ₂	7	905 ¹ / ₂	1	162 ¹ / ₂
Ware	"	"	10	1,107	2	85	28	4,142 ¹ / ₂	2	458 ¹ / ₂
Atwood	Rainy River	Wm. Cameron, Stratton								
Blue	"	"	5	677	2	81	6	796	1	
Curran	"	"	1	162	1	2	2	322	2	285
Dewart	"	"	5	736 ¹ / ₂			11	1,578	1	162
Dilke	"	"								
Morley	"	"							1	119
Morson	"	"	8	1,233 ¹ / ₂			18	2,432 ³ / ₄		
McCrosson	"	"	11	1,475	1	40	12	1,424 ³ / ₈	1	80
Nelles	"	"	6	797	1	80			3	282
Pattullo	"	"	1	155	2	4	2	239 ¹ / ₂	2	323
Pratt	"	"	3	413 ³ / ₄	1	21	7	1017 ¹ / ₂	1	181
Roseberry	"	"								
Shenston	"	"							1	177
Sifton	"	"	15	1,830	2	97 ¹ / ₄	12	1,827 ¹ / ₂	2	336
Spohn	"	"	5	471 ³ / ₄	1	84 ¹ / ₄	6	870 ³ / ₄	3	575 ¹ / ₄
Sutherland	"	"	16	1,928	1	43	11	1,711	1	160
Tait	"	"	4	553			7	792	2	214
Tovell	"	"	5	640			9	1,416 ¹ / ₄	2	476
Worthington	"	"								
Aylsworth	"									
Barwick	"									
Burriss	"		2	320			2	360 ¹ / ₂	1	159
Carpenter	"									
Crozier	"		1	40 ¹ / ₂						
Dance	"		6	879 ¹ / ₂	1	10	10	1,562 ³ / ₄	2	329
Devlin	"		1	40 ¹ / ₂						
Dobie	"				1	¹ / ₂			1	248 ¹ / ₂
Fleming	"						2	293 ¹ / ₂		
Kingsford	"		10	1,697 ¹ / ₂			9	1,487 ¹ / ₂		
Lash	"		1	162	1	2	2	202 ¹ / ₂		
Mather	"		3	416	1	15 ⁵ / ₁₀			2	333 ¹ / ₂
Miscampbell	"		2	302 ¹ / ₂			3	373		
Potts	"						1	160 ¹ / ₂		
Richardson	"		8	1,315			9	1,486 ¹ / ₂	1	160
Roddick	"									
Woodyatt	"		1	82			1	82		
Aubrey	Kenora	J. E. Gibson, Dryden	4	636	3	32	5	785	4	571
Britton	"	"	9	1,395			13	2,058	1	160 ¹ / ₂
Eton	"	"	1	159 ¹ / ₂			4	556	6	842
Gamey	"	"								
Langton	"	"	1	148 ¹ / ₂	1	32	5	762	1	160
Melgund	"	"	15	2,522 ¹ / ₂	1	76	3	469 ¹ / ₂		
Mutrie	"	"	1	156 ¹ / ₂	1	2	1	150 ¹ / ₂	4	592 ¹ / ₂
Revell	"	"								
Redvers	"	"	1	131			3	449		
Rowell	"	"	10	1,427			6	954	4	470 ¹ / ₄
Rugby	"	"	5	800			5	729	2	240 ¹ / ₂
Sanford	"	"	5	564 ¹ / ₄			3	473 ¹ / ₄	4	556 ¹ / ₂
Southworth	"	"	10	1,379 ¹ / ₂			5	800 ¹ / ₂	1	161

Appendix No. 11—Concluded

Township	District or County	Agent	Persons located	Area located	Purchasers	Area sold	Persons cancelled	Area resumed	Patents issued	Area patented
Temple.....	Kenora.....	J. E. Gibson,	20	2,935½	1	76½	10	1,416	1	156
Van Horne.....	"	Dryden.....			1	80	1	120		
Wabigoon.....	"	"	3	311½	1	39½	3	437½	1	157
Wainwright.....	"	"	6	873	2	156	5	712	1	120
Zealand.....	"	"	9	1,304	2	76½	3	404½	2	206
Melick.....	"	"	7	1,034½			4	701½	2	316½
Pellatt.....	"	"	3	475½	1	½	3	480½	1	35
Balfour.....	Sudbury.....	J. K. MacLennan,								
		Sudbury.....	6	462			1	153	3	300
Bleazard.....	"	"	1	89½			3	406½	4	478
Broder.....	"	"								
Capreol.....	"	"	1	79½			2	296	1	198
Chapleau.....	"	"								
Dill.....	"	"					3	498½	3	639½
Garson.....	"	"								
Hammer.....	"	"	3	343¾	1	33¾	8	1,106½	3	196
Lumsden.....	"	"	11	1,678			5	794	2	179½
Morgan.....	"	"	2	320			3	400	1	80
Neelon.....	"	"			1	80			1	36
Rayside.....	"	"					1	162½	1	152½
Appleby.....	Sudbury.....	J. Brown,								
		Markstay....	5	642½	1	2	2	242½	3	479½
Casimar.....	"	"	2	286			1	160½	1	125
Dunnet.....	"	"								
Hagar.....	"	"	15	2,206½	3	54	4	611	4	160
Jennings.....	"	"	1	80½			1	156	1	318½
Kirkpatrick.....	"	"	1	163½			2	200	1	80½
Ratter.....	"	"	17	2,803	1	12½	10	1,666½	2	323
Caldwell.....	Nipissing.....	J. P. Marchildon,								
		Sturgeon Falls..	1	160						
Cosby.....	"	"	2	239½	1	½	1	160½	1	78½
Grant.....	"	"	4	640	1	97	9	1,317	1	34½
Macpherson.....	"	"	1	159½	1	80	8	1,099	1	319½
Martland.....	"	"	3	360½			1	160	2	239½
Springer.....	"	"	1	160			2	310	2	153½
Abinger.....	Lennox and Addington...	Chas. Both, Denbigh.....								
Canonto, S.....	Frontenac.....	"								
Clarendon.....	"	"								
Miller.....	"	"							1	100
Denbigh.....	Lennox and Addington...	"								
Palmerston.....	"	"	2	241						
McClintock.....	Haliburton....	Unattached.....								
Gibson.....	Muskoka.....	"								
Shawanaga.....	Parry Sound....	"	2	200						
Wallbridge.....	"	"								
Airy.....	Nipissing.....	"	1	105					2	200
Finlayson.....	"	"								
Murchison.....	"	"	6	594			1	193		
Sabine.....	"	"								
Burton.....	Parry Sound...	"					1	100		
Total.....			497	65,732¾	94	3,986¾	511	71,169%	367	47,114¾

No. of lots assigned.....150

No. of acres assigned.....19,890

Appendix No. 12.

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1926.

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Blount.....	Cochrane.....	S. J. Dempsay, Cochrane	2,811 $\frac{1}{2}$	32	5	560	1	2.82
Brower.....	"	"	320	4	3	376 $\frac{1}{2}$	71	1,132
Calder.....	"	"	2,785	33	28	4,063	2	156
Clute.....	"	"	150	1	7	1,003	17	1,934
Colquhoun.....	"	"	734	10	9	1,378		
Fox.....	"	"	316	3	6	803		
Fournier.....	"	"	76	1	8	1,272	1	162
Fauquier.....	"	"	687	8	2	300	6	754
Glackmeyer.....	"	"	149	1	3	435	11	1,658
Kennedy.....	"	"			2	300	1	150
Leitch.....	"	"	894	12	12	1,606	1	151
Lamarche.....	"	"	474	4	1	159	8	1,173
Machin.....	"	"	1,050	14	1	150		
Newmarket.....	"	"	939	12	10	1,542	3	482
Pyne.....	"	"	1,200	13	13	1,996		
Shackleton.....	"	"	81	1	3	475	5	702
Barker.....	Cochrane.....	John Bresnahan, Hearst	972	13				
Casgrain.....	"	"	576	6	5	602	2	325
Devitt.....	"	"	3,373	42	11	1,525	6	859
Eilber.....	"	"	2,325	29	8	1,200	2	438
Hanlan.....	"	"	748 $\frac{1}{2}$	8	13	1,942	5	688
Kendall.....	"	"	1,279	13	9	1,268	5	1,023
Lowther.....	"	"	1,421	18	16	2,349	1	143
O'Brien.....	Cochrane.....	H. E. Sheppard, Kapuskasing	537	6	3	235	8	2,007.20
Nansen.....	"	"	825 $\frac{1}{2}$	11	8	1,200	1	143
McCrea.....	"	"	7,058 $\frac{1}{2}$	91	8	900		
Owens.....	"	"	1,803	18	15	1,545	1	95
Idington.....	"	"	7,819	81	19	1,766		
Williamson.....	"	"	4,554	50	13	1,252	1	91
Bayley.....	Temiskaming.....	Jos. Woollings, Englehart	80	1				
Blain.....	"	"	319 $\frac{1}{2}$	3	5	810 $\frac{1}{2}$	24	1,004
Catharine.....	"	"					3	382.39
Chamberlain.....	"	"	159 $\frac{1}{2}$	2			2	250
Dack.....	"	"	319 $\frac{1}{2}$	4	2	280 $\frac{1}{2}$	11	680 $\frac{1}{2}$
Eby.....	"	"					4	438 $\frac{1}{4}$
Evanturel.....	"	"	616 $\frac{1}{4}$	5	5	789 $\frac{1}{2}$	1	159 $\frac{1}{2}$
Ingram.....	"	"	80	1	3	475	1	130 $\frac{1}{2}$
Marter.....	"	"	241 $\frac{1}{2}$	2			1	160
Marquis.....	"	"	639 $\frac{1}{2}$	6	3	480	5	282
Pacaud.....	"	"	236 $\frac{1}{2}$	3	2	316	5	320 $\frac{1}{2}$
Pense.....	"	"	331 $\frac{1}{4}$	4	11	1,723 $\frac{1}{2}$	1	160
Robillard.....	"	"	162	1	6	935 $\frac{1}{2}$	4	640
Savard.....	"	"			3	475 $\frac{1}{2}$	1	156 $\frac{1}{2}$
Truax.....	"	"			9	1,445 $\frac{1}{2}$	1	157 $\frac{1}{2}$
Davidson.....	"	"					1	48.09
Gross.....	"	"			4	650		
Sharpe.....	"	"			10	1462 $\frac{1}{2}$	1	160

Appendix No. 12—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Benoit.....	Temiskaming....	J. A. Hough, Matheson	557	7	2	228	2	347
Beatty.....	Cochrane.....	"	355	3			2	313
Bond.....	"	"			3	470	2	323
Bowman.....	"	"			4	641		
Calvert.....	"	"	544	5	2	295	3	472
Carr.....	"	"					9	1,177
Clergue.....	"	"	167	2			6	756
Currie.....	"	"	79	1	5	641		
Dundonald.....	"	"	272	3	2	304	2	330
Evelyn.....	"	"	299	4	12	1,800		
German.....	"	"	628	7	16	2,417		
Hislop.....	"	"	82	1	3	415	2	378
Matheson.....	"	"				989		
Mountjoy.....	"	"	228	2	2	400	5	581
McCart.....	"	"	703	8	8	1,217	3	451
Playfair.....	"	"			1	162	1	160
Stock.....	"	"	321	4	7	1,109	2	229
Taylor.....	"	"			1	151	6	741
Walker.....	"	"	73	1	12	1,847	2	325
Armstrong.....	Temiskaming....	J. R. McCrea, New Liskeard	150	1			1	160
Auld.....	"	"	313	2	7	1,068	1	161
Beauchamp.....	"	"			6	959	1	161
Brethour.....	"	"			1	130	1	158
Bryce.....	"	"			14	2,234	2	320
Cane.....	"	"			1	161	3	477
Casey.....	"	"					1	159
Dymond.....	"	"					2	73
Firstbrook.....	"	"			5	667	2	318
Harley.....	"	"	160	2	1	160	1	80
Henwood.....	"	"	239	2			2	314
Harris.....	"	"	80	1			1	159
Hilliard.....	"	"	80	1	1	160	1	160
Hudson.....	"	"				134		
Kerns.....	"	"	158	1	1	80	1	158
Lundy.....	"	"	243	3	13	2,078		
Tudhope.....	"	"	121	1	2	317	1	150
James.....	Temiskaming....	Mark Morgan, Elk Lake	40	1				
Smyth.....	"	"			8	1,259		
Lorrain.....	Temiskaming....	Neil J. McAulay, Haileybury			11	1,633		
Hugel.....	Nipissing.....	John Brown, Markstay					1	170
Loudon.....	"	"	642	4				
Loughrin.....	"	"	1,443	9	3	493		
Scollard.....	Nipissing.....	J. P. Marchildon, Sturgeon Falls	154	1				
Mason.....	Sudbury.....	J. P. Marchildon, Sturgeon Falls	192	1			1	192
Phelps.....	Nipissing.....	W. J. Parsons, North Bay	1,921	12	7	1,126	4	714
Widdifield.....	"	"	969	7	10	1,524	8	1,006

Appendix No. 12—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Hallam.....	Sudbury.....	R. A. Teasdale, Massey	485	3			2	322
Harrow.....	"	"	461	3			1	137
May.....	"	"	80	1			2	240
Shedden.....	"	"	160	1				
Salter.....	"	"	160	1				
Bigwood.....	Sudbury.....	J.K. MacLennan, Sudbury	1,051	10			11	623
Dowling.....	"	"	81	1	1	159	1	158
Delamere.....	"	"	281	2			3	482
Nairn.....	Sudbury.....	Ed. Arthurs, Espanola	125	1				
Drayton.....	Kenora.....	J. D. C. Smith, Kenora	442	5			4	305
Farrington.....	"	"			7	1,013		
Halkirk.....	"	"			1	160		
Jaffray.....	"	"					2	167
Umbach.....	"	"			1	120		
Watten.....	"	"			2	147		
Bright.....	Algoma.....	Albert, Grigg, Bruce Mines	275	3	2	210		
Bright Add'l.....	"	"	72	1				
Cobden.....	"	"	85	1	2	318	1	145
Grasett.....	"	"			3	457		
Gladstone.....	"	"	165	1	1	156		
Gould.....	"	"	125	1				
Galbraith.....	"	"					1	152
Houghton.....	"	"			1	160		
Johnson.....	"	"	160	1	1	339	1	185
Kirkwood.....	"	"	147	1				
Parkinson.....	"	"			3	465	3	402
Patton.....	"	"	83	1	4	467	1	164
Rose.....	"	"	320	2	11	1,771		
Striker.....	"	"	135	2	4	745	4	432
Thompson.....	"	"	188	2			1	160
Wells.....	"	"	158	1	4	658		
Aweres.....	Algoma.....	T. Dean, Sault Ste. Marie	63	1	1	132	2	82
Tarentorus.....	"	"	155	1			1	80
Tarbutt Add'l.....	"	"					1	203
Vankoughnet.....	"	"					4	600
Devon.....	Thunder Bay.....	S. H. Wilson, Pt. Arthur	120	1	1	92		
Forbes.....	"	"	2,421	15			1	154
Fowler.....	"	"	348	2	3	472		
Goldie.....	"	"	1,341	9	11	1,742		
Jacques.....	"	"	1,872	12	5	775		
Lyon.....	"	"	160	1	2	321	3	520
McTavish.....	"	"	715	5				
Sibley.....	"	"	2,255	14	3	473		
Upsala.....	"	"	1,060	7	12	1,842	3	412
Amherst Island.....	Lennox and Addington	Unattached.....					1	90
Bruce.....	Grey.....	"					2	151
Burwash.....	Sudbury.....	"					1	160
Badgerow.....	Nipissing.....	"	477	3				

Appendix No. 12—Continued

Township	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Bagot.....	Renfrew.....	Unattached.....	200	2	.....	.....	3	535
Barber.....	Timiskaming.....	"	121	1	.....	.....	.....	.....
Burke.....	Kenora.....	"	22	1	.....	.....	1	22
Bathurst.....	Lanark.....	"	165	1	.....	.....	1	100
Cronley.....	Renfrew.....	"	100	1	.....	.....	1	100
Charlotteville.....	Norfolk.....	"	.....	.....	1	100	.....	.....
Coleman.....	Timiskaming.....	"	.....	.....	.....	.....	3	58
Crosby (South).....	Leeds.....	"	50	1	.....	.....	1	50
Carden.....	Victoria.....	"	205	2	1	100	6	705
Cherriman.....	Sudbury.....	"	180	1	.....	.....	.....	.....
Creighton.....	"	"	460	3	1	160	3	488
Crerar.....	Nipissing.....	"	480	3	.....	.....	2	321
Darling.....	Lanark.....	"	.....	.....	2	250	.....	.....
Dryden.....	Sudbury.....	"	.....	.....	1	160	2	154
Drury.....	"	"	.....	.....	.....	.....	1	123
Dalhousie.....	Lanark.....	"	80	1	.....	.....	.....	.....
Egremont.....	Grey.....	"	.....	.....	.....	.....	1	200
Elzevir.....	Hastings.....	"	100	1	.....	.....	1	100
Fairbank.....	Sudbury.....	"	221	2	2	337	3	475
Falconbridge.....	"	"	154	1	1	153	1	160
Falconer.....	Nipissing.....	"	590	4	.....	.....	1	148
Field.....	"	"	207	2	1	80	1	15
Gibbons.....	"	"	320	3	1	80	3	467
Glenelg.....	Grey.....	"	.....	.....	.....	.....	1	100
Harvey.....	Peterborough.....	"	.....	.....	.....	.....	3	481
Haddo.....	Sudbury.....	"	160	1	.....	.....	.....	.....
Holland.....	Grey.....	"	.....	.....	.....	.....	1	50
Henry.....	Sudbury.....	"	157	1	.....	.....	.....	.....
Kennebec.....	Frontenac.....	"	.....	.....	1	91	3	525
Kaladar.....	Lennox and Addington	"	.....	.....	1	430	.....	.....
Lavant.....	Lanark.....	"	.....	.....	1	200	.....	.....
Lorne.....	Sudbury.....	"	378	2	.....	.....	6	926
Lansdowne.....	Leeds.....	"	.....	.....	.....	.....	1	190
Louise.....	Sudbury.....	"	285	2	.....	.....	2	287
McKim.....	"	"	.....	.....	.....	.....	1	162
Madoc.....	Hastings.....	"	.....	.....	.....	.....	1	100
Mara.....	Ontario.....	"	109	1	.....	.....	1	100
Olden.....	Frontenac.....	"	99	1	.....	.....	1	100
Otonabee.....	Peterborough.....	"	50	1	.....	.....	.....	.....
Proton.....	Grey.....	"	.....	.....	.....	.....	1	96
Roxborough.....	Stormont.....	"	.....	.....	.....	.....	1	100
Rutherford.....	Manitoulin Isl.	"	.....	.....	1	160	.....	.....
Sandwich East.....	Essex.....	"	1	4	.....	.....	2	42
Seymour.....	Northumberland.....	"	.....	.....	.....	.....	1	200
Saugeen.....	Bruce.....	"	148	1	1	148	2	198
Shakespeare.....	Sudbury.....	"	154	1	.....	.....	2	250
Sheffield.....	Lennox and Addington	"	250	2	.....	.....	1	200
Sherbrooke, North	Lanark.....	"	30	1	.....	.....	1	30
Sherbrooke, South	Lanark.....	"	50	1	1	50	2	127
Somerville.....	Victoria.....	"	.....	.....	.....	.....	4	207
Snider.....	Sudbury.....	"	151	1	1	157	.....	.....
Smith.....	Peterborough.....	"	.....	.....	.....	.....	1	92
Tisdale.....	Timiskaming.....	"	81	1	.....	.....	.....	.....
Tiny.....	Simcoe.....	"	69	1	1	69	.....	.....
Tudor.....	Hastings.....	"	.....	.....	.....	.....	2	238
Waters.....	Sudbury.....	"	75	1	.....	.....	2	337
Whitney.....	Timiskaming.....	"	75	1	.....	.....	.....	.....
Total.....			82,564	834	586	85,230	392	47,493

Number of lots assigned.....376

Number of acres assigned.....46,849

Appendix No. 12—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Matheson.....	4	9
Cochrane.....	Cochrane.....	11	23
Cochrane.....	Hearst.....	3	13
Cochrane.....	Kapuskasing.....	16	4
Algoma.....	Bruce Mines.....	2	0
Timiskaming.....	Englehart.....	4	10
Nipissing.....	Markstay.....	1	3
Nipissing.....	North Bay.....	6	2
Thunder Bay.....	Port Arthur.....	12	2
Sudbury.....	Massey Station.....	0	1
		59	67

Statement showing the number of purchasers, acres sold and of patents issued in townsites during the year ending 31st October, 1926.

Townsite	District or County	Agent	No. of acres sold	No. of pur- chasers	No. of patents issued	No. of acres patented
Alexandra.....	Cochrane.....	Unattached.....	36	1	0	0
Belleville City.....	Hastings.....	".....	25	1	1	25
Bartleman.....	Timiskaming.....	C. A. Duval.....	24	4	2	1.40
Capreol.....	Sudbury.....	Unattached.....	60	5	1	.33
Colchester.....	Essex.....	".....	28	1	2	1.01
Gowganda.....	Timiskaming.....	".....	3.64	12	7	2.50
Hearst.....	Cochrane.....	".....	.50	2	2	2.25
Hilton.....	Algoma.....	".....	2.50	3	1	1
Hornepayne.....	Algoma.....	".....	3.21	7	11	1.96
Iroquois Falls.....	Timiskaming.....	".....	3.74	1	1	3.37
Island Falls Jct.....	".....	".....	.40	1	1	.40
Kapuskasing.....	".....	H. E. Sheppard.....	4.55	2	38	4.51
Kirkland Lake.....	".....	Unattached.....	3.20	24	20	1.96
Low Bush River.....	Cochrane.....	".....	.39	1	0	0
Macfarlane.....	Kenora.....	".....	3.00	1	3	.66
Missinaibi.....	Algoma.....	".....	1.37	4	4	.90
Nakina.....	Thunder Bay.....	".....	1.14	3	5	.87
Timmins (addi- tional).....	Timiskaming.....	C. A. Duval.....	10	1	0	0
Waldhof.....	Kenora.....	Unattached.....	.52	1	0	0
Windsor City.....	Essex.....	".....	12	1	2	.22
Winnipeg River Crossing.....	Kenora.....	".....	.83	2	1	12.56
			30.94	78	102	35.15

Appendix No. 12—Continued

Statement showing islands and parcels sold as summer resorts

ISLANDS SOLD

Part or Parcel	Township	District or County	Agent	No. of acres sold
Island in Skelton Lake, opposite lot 8.....	Cardwell.....	Muskoka.....	W. G. Gerhart...	.25
Island No. 22 in St. Joseph's Channel.....	.....	Algona.....	W. J. Trainor....	2
Island No. 4 in Loon Lake.....	Angelsea.....	Addington.....	Unattached.....	3
Island in Mill Lake, front lot 23, con. 2.....	McDougall.....	Parry Sound.....	I. M. Campbell...	.50
Florence Point, part Island 22....	Matchedash.....	Simcoe.....	Unattached.....	4
Marion Point, part Island 22....	".....	".....	".....	1
George Point, part Island 22....	".....	".....	".....	4
Sunrise Point, part Island 22....	".....	".....	".....	3
Island "B" in Calabogie Lake.....	Blithfield.....	Renfrew.....	".....	.34
Island in Bass Lake opposite lot 24, con. 19.....	Tudor.....	Hastings.....	".....	1.1
Island 92 St. Joseph's Channel.....	.....	Algona.....	W. J. Trainor....	2
" 93 " ".....	.....	".....	".....	2
A-7 French River (Island).....	Scollard.....	Sudbury.....	J. P. Marchildon..	4
Parcels 21 and 22 Big Island.....	Anglesea.....	Addington.....	Unattached.....	4.7
Island opposite lot 13, con. 9....	Burton.....	Parry Sound.....	I. M. Campbell...	.80
North Sister Island.....	".....	".....	".....	.34
Island 2, opposite lot 4, con. 5....	Latchford.....	Nipissing.....	Unattached.....	.5
Island W.S. 107 opposite lot 4, con. 4, Metagamasing Lake.....	Rathbun.....	Sudbury.....	".....	5.3
Island in Soyer's Lake, opposite lots 28 and 30, con. 10.....	Minden.....	Haliburton.....	R. H. Baker.....	1.1
Island J.D. 1747 (Salt Island) front of Hilton.....	.....	Manitoulin.....	W. J. Trainor....	1.60
Island T.P. 3259, Lake Penage.....	.....	Sudbury.....	Unattached.....	.4
Island T.P. 1880.....	.....	Manitoulin.....	W. J. Trainor....	5.45
Island "F".....	Cardiff.....	Haliburton.....	A. M. Wilson.....	5
Parcel 5, Island 36 in Severn River.....	Baxter.....	Muskoka.....	W. G. Gerhart...	1.19
Parcel 24, Pine Island.....	Laird & Tarbutt	Algona.....	Unattached.....	1.6
Parcel G.R. 52, Wahnapiatae Lake	Rathbun.....	Sudbury.....	".....	2
Parcel 22, Pine Island.....	Laird & Tarbutt	Algona.....	".....	2.7
Island 43-G, Deep Bay.....	Carling.....	Parry Sound.....	I. M. Campbell...	3.55
Island T.P. 2409.....	.....	Manitoulin.....	W. J. Trainor....	.63
Goolscap Island.....	Rathbun.....	Sudbury.....	Unattached.....	.50
Parcel 1, Island 36, Severn River	Baxter.....	Muskoka.....	W. G. Gerhart...	2
Island A-35 in French River.....	Scollard.....	Sudbury.....	J. P. Marchildon..	5
Onion Island in Stoco Lake, opposite lot 11, con. 9.....	Hungerford.....	Hastings.....	Unattached.....	.53
Island A-8 in French River.....	Scollard.....	Sudbury.....	Marchildon.....	4
Island 2 in 5-mile Bay, opposite lot 2, con. 5.....	Latchford.....	Nipissing.....	Unattached.....	.50
				76.58

Appendix No. 12—Continued

ISLANDS PATENTED

Statement showing islands patented as summer resorts

Part or Parcel	Township	District or County	Agent	No. of acres patented
Anderson Island, Weslemkoon Lake.....	Ashby.....	Lennox and Addington.....	Unattached.....	.60
South part Island 14, Ox Lake....	Allen.....	Sudbury.....	".....	4.9
Island 942-A Georgian Bay.....	Harrison.....	Parry Sound.....	I. M. Campbell...	.03
Island 408 Georgian Bay.....	".....	".....	".....	.25
Island 567-A Georgian Bay.....	".....	".....	".....	.18
Island 369-A Georgian Bay.....	".....	".....	".....	.10
Echo Island in Boshkung Lake....	Stanhope.....	Haliburton.....	R. H. Baker.....	2
Beechwood Island and Island 134	Baxter.....	Muskoka.....	W. B. Gerhart...	13.2
Island C-118.....	Cowper.....	Parry Sound.....	I. M. Campbell...	2
Part McLaren's Island.....	".....	".....	".....	5
Part McLaren's Island.....	".....	".....	".....	5
Part McLaren's Island.....	".....	".....	".....	4
Island B-612.....	".....	".....	".....	1.9
Island B-613.....	".....	".....	".....	.3
Island B-429.....	".....	".....	".....	.7
Island A-7.....	Scollard.....	Sudbury.....	J. Brown.....	4
Island H, Paudash Lake.....	Cardiff.....	Haliburton.....	A. N. Wilson.....	2
Island C.....	Wilson.....	Parry Sound.....	I. M. Campbell...	.45
Part Island, Island Lake.....	".....	".....	".....	5
Little Pine Island, Loon Lake....	Chandos.....	Peterborough.....	Wm. Hales.....	.33
Part Pine Island, Loon Lake....	".....	".....	".....	1.25
Powers Island, Bass Lake.....	Tudor.....	Hastings.....	Unattached.....	1.1
Pine Island, 3-mile Lake.....	Armour.....	Parry Sound.....	D. Thaw.....	2.16
Part Big Island, Loon Lake.....	Anglesea.....	Lennox and Addington.....	Unattached.....	1.75
				58.20

Appendix No. 12—Continued

MAINLAND SOLD

Under summer resort regulations

Part or Parcel	Township	District or County	Agent	No. of acres sold
Location M.C. 14, Abraham's Lake.....	Drayton.....	Kenora.....	Unattached.....	2.1
Part lot 6, con. 4.....	Jones.....	Renfrew.....	F. Blank.....	3.3
Part broken lot 9, con. 10.....	Patterson.....	Parry Sound.....	I. M. Campbell...	3.76
Part broken lot 12, con. 10.....	".....	".....	".....	16
Part broken lot 5, con. 1.....	McMahon.....	Algoma.....	Unattached.....	2.4
Part broken lot 6, con. 9.....	Anglesea.....	Lennox and Addington.....	".....	5
Part broken lot 6, con. 4.....	".....	Lennox and Addington.....	".....	4.43
Part broken lot 14, con. 8, par. 2.....	Gorham.....	Thunder Bay.....	S. H. Wilson.....	.18
Part broken lot 14, con. 8, par. 10.....	".....	".....	".....	.2
Part broken lot 14, con. 8, par. 6.....	".....	".....	".....	.2
Part broken lot 14, con. 8, par. 14.....	".....	".....	".....	.2
Part broken lot 14, con. 8, par. 19.....	".....	".....	".....	.12
Part broken lot 14, con. 8, par. 23.....	".....	".....	".....	.19
Part broken lot 14, con. 8, par. 27.....	".....	".....	".....	.3
Part broken lot 4, con. 3.....	Bigwood.....	Sudbury.....	J. K. MacLennan.....	5
Part broken lot 19, con. 4.....	Cavendish.....	Peterborough.....	A. N. Wilson.....	.5
Part lot 4, con. 10.....	Jones.....	Renfrew.....	F. Blank.....	.3
Part lot 5, con. 10.....	".....	".....	".....	.7
Part broken lot 6, con. 10.....	Anglesea.....	Lennox and Addington.....	Unattached.....	4.56
Part broken lot 9, con. 10.....	Patterson.....	Parry Sound.....	I. M. Campbell...	2.38
Part broken lot 5, con. 10.....	Anglesea.....	Lennox and Addington.....	Unattached.....	.4
Part broken lot 4, con. 10.....	Jones.....	Renfrew.....	F. Blank.....	3.35
Part broken lot 29, con. 7.....	O'Brien.....	Cochrane.....	H. E. Sheppard...	2.4
Part broken lot 14, con. 5.....	Burleigh.....	Peterborough.....	Wm. Hales.....	1.50
Part broken lot 15, con. 5.....	".....	".....	".....	3.50
Part lot 1, con. 1.....	Striker.....	Algoma.....	T. Dean.....	3
Part broken lot 5, con. 10.....	Jones.....	Renfrew.....	F. Blank.....	1
Part lot 10, con. 10.....	Patterson.....	Parry Sound.....	I. M. Campbell...	1
Part N.E. quarter, sec. 11.....	Awers.....	Algoma.....	T. Dean.....	5
Part lot 22, con. 17, par. 3.....	Ferris.....	Nipissing.....	W. J. Parsons....	.50
Parcel P.P. 178, Lake Shebandowan.....	".....	Kenora.....	S. H. Wilson.....	1.42
Part broken lot 4, con. 10.....	Anglesea.....	Lennox and Addington.....	Unattached.....	2
Parts lot 12 and 13, con. 7.....	Patterson.....	Parry Sound.....	I. M. Campbell...	5
Part broken lot "D", con. 4.....	Bertram.....	Nipissing.....	W. J. Parsons....	10
Parcel 1, part lot 2, con. 1.....	Bigwood.....	Sudbury.....	J. K. MacLennan.....	.15
Parcel 2, part lot 2, con. 1.....	".....	".....	".....	.15
Part south half lot 18, con. 4.....	Aubrey.....	Kenora.....	J. E. Gibson.....	5
Part lot 3, con. 8.....	Wicklow.....	Hastings.....	D. Fuller.....	10
Part lot 2, con. 3.....	Bigwood.....	Sudbury.....	J. K. MacLennan.....	11
Sub. lots 28 and 29, con. 8, par. 32.....	Wood.....	Parry Sound.....	I. M. Campbell...	.77
Part broken lot 24, con. 9.....	Methuen.....	Peterborough.....	Wm. Hales.....	2
Location P.P. 480 Middle Lake Shebandowan.....	".....	Kenora.....	J. E. Gibson.....	1.11
Location P.P. 481, Middle Lake Shebandowan.....	".....	".....	".....	1.19
Part broken lot 11, con. 3.....	Malachi.....	".....	".....	4
				131.76

Appendix No. 13

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1925, to 31st October, 1926

Public Lands (late Crown).....	574
“ “ (late School).....	8
“ “ (late Clergy Reserves).....	4
“ “ (University).....	4
Free Grant Lands (Act of 1913).....	324
“ “ (Act of 1901 Veterans).....	2
Mining Lands (Patents).....	317
Mining Leases.....	156
Crown Leases.....	90
Licenses of Occupation.....	167
Temagami Island Leases.....	18
Sand and Gravel Licenses.....	30
Pine Patents.....	19
Water Power Leases.....	3
Total.....	1,716

Appendix No. 14

RECORDS BRANCH 1925-1926

Communications received:

From Crown Land Agents.....	8,881
From Crown Timber Agents.....	5,415
From Mining Recorders.....	4,006
From Homestead Inspectors.....	2,961
From Superintendent Algonquin Park.....	511
From Superintendent Quetico Park.....	194
From Superintendent Rondeau Park.....	169
Orders-in-Council.....	303
Telegrams.....	174
All other sources.....	29,337

Total incoming (Minister's office and Land Tax Branch, not included)..... 49,951

Communications sent out:

To Crown Land, Timber, Inspectors and Park Superintendents.....	20,859
To General Public.....	19,364
Circular letters re timber sales and mill licenses.....	10,000
Maps and blueprints by Survey Branch.....	4,700

Total outgoing (Minister's office and Land Tax Branch, not included)..... 54,923

Postage for the year including Land Tax Branch..... \$2,649 46

Files:

New files issued—General.....	5,907
New files issued—Accounts Chargeable.....	1,016
New files issued—Accounts free.....	320

Appendix No. 15

REPORT OF DIRECTOR OF SURVEYS

The following surveys were carried out under the direction of this Department during the past year:

LAKE AND RIVER TRAVERSE

- Trout Lake and River, district of Patricia, C. R. Kenny, Ontario Land Surveyor, Sault Ste. Marie, Ont.
- Ogoki River and headwater lakes, district of Thunder Bay, James S. Dobie, Ontario Land Surveyor, Thessalon, Ont.
- Part of Wenasaga River, district of Patricia, J. R. Gill, Ontario Land Surveyor, Sudbury, Ont.
- Maligne River and other waters in Quetico Park, district of Rainy River, E. L. Cavana, Ontario Land Surveyor, Orillia, Ont.
- Saganaga Lake and other lakes in Quetico Park, district of Rainy River, D. J. Gillon, Ontario Land Surveyor, Fort Frances, Ont.
- Part of north shore of Lake Nipigon, district of Thunder Bay, W. F. Rubidge, Ontario Land Surveyor, Port Credit, Ont.
- Woman Lake and Birch Lake in the district of Patricia, H. W. Sutcliffe, Ontario Land Surveyor, New Liskeard, Ont.
- Part of Little Abitibi River and lakes in the district of Cochrane, T. G. Code, Ontario Land Surveyor, Cobalt, Ont.

BASE AND MERIDIAN LINES

- Part of 9th base line running west from mileage 72 on Ross' meridian line of 1920 intersecting the Ontario-Manitoba Boundary near Carrol Lake and crossing Red Lake in the district of Patricia. Speight & vanNostrand, Ontario Land Surveyors, Toronto.
- Part of 10th base line in the district of Patricia running east from 96th mile on Ross' meridian of 1920 and crossing Birch Lake; also meridian lines at twelve mile intervals south therefrom, Beatty & Beatty, Ontario Land Surveyors, Pembroke, Ont.
- Part of 9th base line in the district of Patricia running east from the 72nd mile on Ross' meridian of 1920 to Wenasaga River, and meridian lines north and south therefrom at twelve mile intervals. J. R. Gill, Ontario Land Surveyor, Sudbury.
- Part of 1st base line and meridian line south from Niven's base line of 1891 in Quetico Park, district of Rainy River, Phillips & Benner, Ontario Land Surveyors, Port Arthur, Ont.

TOWNSHIP OUTLINES

Townships in the vicinity of Red Lake, district of Patricia, by H. W. Sutcliffe, Ontario Land Surveyor, New Liskeard, Ont., named as follows: Bateman, McDonough, Ranger, Balmer, Dome, Fairlie, Todd, Willans, Byshe, Heyson.

TOWNSHIP SUBDIVISIONS

- Residue of township of Wicksteed, district of Algoma, E. L. Moore
Ontario Land Surveyor, North Bay, Ont.
- Subdivision of the townships of Echo, Pickerel and Vermilion, in the
district of Kenora, R. S. Kirkup, Ontario Land Surveyor, Port
Arthur, Ont.

MISCELLANEOUS SURVEYS

- Survey of part of lot 4, concession 1, township of Striker, district of
Algoma, into summer resort parcels. C. R. Kenny, Ontario Land
Surveyor, Sault Ste. Marie, Ont.
- Timber line between east and west parts of limit on Petawawa River,
license No. 103, 1925-26, Beatty & Beatty, Ontario Land Sur-
veyors, Pembroke, Ont.
- Summer resort parcels on Oxtongue Lake, township of McClintock,
county of Haliburton, J. T. Coltham, Ontario Land Surveyor,
Parry Sound, Ont.
- Survey of lines between concessions 8 and 9, township of Ridout,
district of Muskoka, J. T. Coltham, Ontario Land Surveyor,
Parry Sound, Ont.
- Retracing of part of the boundary line between the districts of Rainy
River and Thunder Bay south from Canadian National Railways,
D. J. Gillon, Ontario Land Surveyor, Fort Frances, Ont.
- Subdivision of summer resort parcels southeast quarter section 11,
township of Aweres, district of Algoma, Lang & Ross, Ontario
Land Surveyors, Sault Ste. Marie, Ont.
- Subdivision of squatters' lots at Hornepayne, E. L. Moore, Ontario
Land Surveyor, North Bay, Ont.
- Subdivision of block of land for farm and gardening purposes in the
township of Nakina, district of Thunder Bay, Phillips & Benner,
Ontario Land Surveyors, Port Arthur, Ont.
- Subdivision town site at Hudson on the Canadian National Railway
in the district of Kenora, Phillips & Benner, Ontario Land Sur-
veyors, Port Arthur, Ont.
- Survey of east and north boundary Hudson's Bay Company's Reserve
at Lacloche, district of Algoma, T. J. Patten, Ontario Land
Surveyor, Little Current, Ont.
- Town site at Goldpines, district of Patricia, C. H. Wilkins, Ontario
Land Surveyor, Goldpines, Ont.
- Inspection of surveys field work, C. E. Fitton, Ontario Land Surveyor,
Toronto.
- Subdivision of cottage sites Jordan Harbor, township of Louth, county
of Lincoln, F. N. Rutherford, Ontario Land Surveyor, St.
Catharines, Ont.
- Town and park lot subdivision of lands patented subsequent to 1910 have
been approved pursuant to R.S.O. 1914, chapter 34, and amendments as follows:
- Park lot 130, Hornepayne, township of Wicksteed (M-60).
Part of mining claim TC 711, township of Teck (M-93).
Part of mining claim TC 711, township of Teck (M-91).
Part of mining claim TC 708, township of Teck (M-92).

Municipal surveys performed under instructions and authority of the Lieutenant-Governor in Council were completed and confirmed as follows:

- Survey of boundary line between the village of Port Stanley and village of Southwold, county of Elgin.
- Survey of limits of Simcoe Street from King Street to Queen Street, city of Toronto.
- Survey of line between lots 30 and 31, 1st concession, township of Osgoode, county of Carleton.
- Survey of limits of Bloor Street between Lansdowne and Perth Avenues, city of Toronto.
- Survey of part of block "O" in the city of Brantford.

Extracts from the reports of the several surveyors employed during the year describing the country traversed will be found in appendices 20 to 28:

The following maps have been published during the year:

- 20-A—Map of the Province of Ontario.
- 25-B—Map of the western part of Cochrane district.
- 25-A—Second edition map, district of Thunder Bay.
- Map of summer resort parcels Wahnapeitei Lake, district of Sudbury.
- New edition Rainy River timber limit map.
- Second edition plan of islands north shore of Georgian Bay, between Coponaning and Key Inlet, district of Parry Sound.

L. V. RORKE,
Director of Surveys.

Appendix No. 16

Statement of Municipal Surveys confirmed during the twelve months ending
October 31st, 1926.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes, 1920, chap. 48, sec. 18
1	Jas. A. Bell & Son.	722	Aug. 27, 1919	To survey the boundary line between the village of Port Stanley and the township of Southwold, in the county of Elgin, and that stone or other durable monuments be placed, marking such boundary and the intersections of the roads or streets running from said village into said township.	April 21, 1926
2	Speight & van Nostrand.	743	April 27, 1925	To survey and define the limits of Simcoe street in the city of Toronto, from King Street to Queen Street and to mark the same with standard iron monuments.	May 6, 1926
3	N. B. MacRostie . . .	746	Nov. 10, 1925	To survey the side road between lots 30 and 31 in the 1st concession of the township of Osgoode and plant standard iron monuments to mark the said road allowance.	July 5, 1926
4	Speight & van Nostrand.	750	Jan. 6, 1926	To survey, establish and define the limits of Bloor Street between Lansdowne and Perth Avenues (being part of the original road allowance between the 1st and 2nd concessions in front of lots 32, 33 and 34 in the township of York) and to mark the same with standard iron monuments.	Oct. 13, 1926

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1926.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey
1	MacKay & MacKay	747	Nov. 12, 1925	Survey the road allowance between lots 26 and 27 across concessions 4 and 5 of the township of Saltfleet in the county of Wentworth, and to plant standard iron monuments to define the limits of said road allowance.
2	Speight & van- Nostrand.....	748	Dec. 23, 1925	To survey the front and rear angles and the southerly and easterly boundaries of lots 4 and 5, in the 3rd concession south of Dundas Street in the township of Toronto, county of Peel, and to mark the same with standard iron monuments.
3	E. R. Bingham.....	749	Dec. 30, 1925	To survey the outlines of certain lands in the township of Blake, in the district of Thunder Bay, said lands being more particularly enumerated on the attached list.
4	F. N. Rutherford...	751	Jan. 12, 1926	To survey that part of the broken front concession Lake Erie, lying west of the original allowance for road between lots Nos. 26 and 27 in the township of Bertie, county of Welland, and to mark the same by standard iron monuments, that is, at the front and rear angles of each lot.
5	Andrew L. Gray	752	Jan. 25, 1926	To survey and establish the limits of the original road allowance in front of the 12th concession of the township of Storrington, in the county of Frontenac, in front of lots 31 to 38 inclusive, and to mark with standard iron monuments the front angles of the lots in the 12th concession and the rear angles of the lots in the 11th concession, along said part of road allowance.
6	W. C. Jepson.....	753	April 15, 1926	To survey and mark on the limits the reserve of the one chain reserve along the Niagara River extending from Queen Victoria Niagara Falls Park to the northerly limit of the city of Niagara Falls, in the county of Welland, and plant stone or standard iron monuments to mark the boundary of said one chain reserve.
7	A. M. Jackson.....	754	Mar. 23, 1926	To survey that part of the road allowance between the townships of Oakland and Townsend between lots 6 and 7 to the Indian Line at the easterly end, and to plant standard iron monuments to mark the said road allowance.
8	W. H. Fairchild....	755	June 18, 1926	To survey and define the limits of the southerly boundaries of blocks 32 and 33 and the northerly boundary of block 50 as shown on registered plan No. 20B in the town of Simcoe, in the county of Norfolk, and to plant standard iron monuments to mark the same.
9	R. M. Lee.....	756	July 5, 1926	To survey the following lands in the township of Brantford:— (1) That part of block "O" in Low's survey which has been sold without reference to a registered plan.

Appendix No. 17—Continued

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey
	R. M. Lee— <i>Contd.</i>			<p>(2) That part of lot "C" in the 3rd concession of the township of Brantford which has been sold without reference to a registered plan.</p> <p>(3) That part of the Smith and Kirby tract adjoining the northern boundary thereof which has been conveyed without reference to a proper registered plan.</p> <p>And to mark the same with standard iron monuments.</p>
10	Speight & van- Nostrand.	750	Jan. 6, 1926	To survey, establish and define the limits of Bloor Street between Lansdowne and Perth Avenues (being part of the original road allowance between the 1st and 2nd concessions in front of lots 32, 33 and 34 in the township of York), and to mark the same with standard iron monuments.

Appendix No. 18

Statement of Crown Surveys in progress during the twelve months ending October 21st, 1926.

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount
1	Mar. 2, 1926	Speight & van- Nostrand.....	Base line district of Patricia.....	\$7,237 50
2	Mar. 12, 1926	H. W. Sutcliffe.....	Township outlines district of Patricia.....	5,000 00
3	April 29, 1926	T. J. Patten.....	East boundary of Hudson's Bay Company at LaCloche River.....	200 00
4	April 29, 1926	C. H. Wilkins.....	Survey town plot of Goldpines, district of Patricia.....	4,600 00
5	May 1, 1926	J. S. Dobie.....	Traverse of upper waters of Allanwater and Ogoki River and lake expansion, district of Thunder Bay.....	6,700 00
6	Mar. 19, 1926	J. R. Gill.....	Base and meridian lines, district of Patricia.	5,000 00
7	May 3, 1926	C. R. Kenny.....	Traverse Trout Lake and river, district of Patricia.....	4,300 00
8	Mar. 23, 1916	Phillips & Benner....	Survey of base line and meridian lines, district of Rainy River.....	5,125 00
9	May 7, 1926	D. J. Gillon.....	Retrace easterly boundary of Quetico Park, district Rainy River and Thunder Bay..	3,900 00
10	May 11, 1926	W. F. B. Rubidge.....	Traverse survey part of north shore Lake Nipigon, district of Thunder Bay.....	3,570 00
11	May 14, 1926	C. E. Fitton.....	Inspection of survey, 1926.....	3,400 00
12	May 13, 1926	T. C. Code.....	Traverse Little Abitibi Lake and river, district of Cochrane.....	1,500 00
13	May 6, 1926	E. L. Cavana.....	Traverse certain waters Quetico Park, dis- trict of Rainy River.....	3,620 00
14	Sept. 27, 1926	Phillips & Benner....	Subdivide block of land in the township Nakina, district Thunder Bay.....	300 00
15	May 3, 1926	E. L. Moore.....	Survey northeasterly part of township Wicksteed, district of Algoma.....	1,000 00
16	June 23, 1926	J. T. Coltham.....	Traverse of Oxtongue Lake, township McClintock, district Muskoka.....	100 00
				<hr/> \$55,552 50

Appendix No. 19

Statement of Crown Surveys completed and closed during the twelve months ending
October 31st, 1926.

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount Paid
1	April 1, 1925	J. L. Morris.....	Survey certain triangulation stations.....	\$1,895 64
2	April 22, 1925	C. E. Fitton.....	Inspection of surveys, 1925.....	988 95
3	April 21, 1925	Jas. S. Dobie.....	Traverse Allanwater River and head waters Ogoki River, district of Thunder Bay...	5,107 50
4	April 16, 1925	Phillips & Benner.....	Survey summer cottage sites on shores of Lower and Middle Shebandowan lakes, etc., district of Thunder Bay.....	3,693 86
5	April 16, 1925	E. R. Bingham.....	Resurvey of northeast part township of Sibley, district of Thunder Bay.....	776 37
6	April 15, 1925	C. E. Fitton.....	Survey town plot Allanwater, district of Thunder Bay.....	514 12
7	April 1, 1925	J. R. Gill.....	Survey islands and summer resorts Lake Wanapitei, district of Sudbury.....	3,087 55
8	Nov. 7, 1925	J. S. Dobie.....	Survey cottage sites on shore Waquekabung Lake, district of Algona.....	94 00
9	Oct. 5, 1925	R. S. Kirkup.....	Subdivide townships Echo and parts of Pickerel and Vermilion, district of Kenora	4,392 25
10	Oct. 5, 1925	H. W. Sutcliffe.....	Meridian and base lines, district of Cochrane.....	2,015 00
11	April 15, 1925	Lang & Ross.....	Township outlines along C.P.R., Thunder Bay district.....	2,411 25
12	April 3, 1925	C. R. Kenny.....	Traverse of Little Current River, district of Cochrane.....	3,406 02
13	April 15, 1925	T. G. Code.....	Survey residue township of Fauquier, etc., district of Cochrane.....	351 84
14	Jan. 12, 1926	C. E. Fitton.....	Inspection of lots in 6th concession Bigwood, district of Sudbury.....	65 25
15	April 15, 1925	Beatty & Beatty.....	Traverse islands and shores of certain lakes in township of Bedford, county of Frontenac.....	1,273 50
16	Oct. 24, 1925	F. N. Rutherford.....	Summer resort lots 20 and 18, broken front concession Louth, county of Lincoln....	416 20
17	April 8, 1926	J. W. Fitzgerald.....	Traverse the shores of certain lakes in the townships of Elmsley and Burgess, county of Leeds.....	2,725 86
18	Mar. 9, 1926	Phillips & Benner....	Survey Hudson town plot, district of Kenora.....	842 40
19	Oct. 16, 1925	J. T. Coltham.....	Survey islands in the southeast end of lake Nipissing, district of Parry Sound.....	1,648 00

Appendix No. 19—Continued

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount Paid
20	Nov. 7, 1925	J. T. Coltham.....	Survey to locate boathouses at Parry Sound, township of McDougall, district of Parry Sound.....	\$300 05
21	July 6, 1926	Lang & Ross.....	Survey resort location S.E. $\frac{1}{4}$ section 11, township of Aweres, district of Algoma..	452 69
22	.....	E. E. Archer.....	Cost of survey islands A and B, Nottawasaga River, county of Simcoe.....	100 00
23	Mar. 19, 1926	Beatty & Beatty.....	Survey base and meridian lines, district of Patricia.....	7,614 59
				<u>\$44,172 89</u>

Appendix No. 20

Extract of report of part of J. R. Gill's survey of 9th base line and meridian lines, district of Patricia, 1926.

"I beg to submit the following report on the survey of part of the 9th base line and certain meridian lines in the district of Patricia, as well as a traverse of part of the Wenesaga River. This work was performed under instructions from the Department of Lands and Forests dated March 19th, 1926, supplemented by further instructions dated May 1st, 1926.

"I left Sudbury on June 8th and proceeded from Hudson Station on the C.N.R. with a party on June 12th. The route taken to get to the work was as follows: By way of Lac Seul to the Pine Ridge Post of the Hudson's Bay Company; thence down the English River to the Mattawa River; up the Mattawa to Pakwash Lake; through Pakwash and Bruce Lakes up the Trout Lake and Woman Lake Rivers to Bear Lake; thence through this lake to the most northerly crossing of it by a meridian run by O.L.S. Ross in 1920. The 72-mile post from which the 9th base line commenced was about two and one-half miles north from the lake.

"After obtaining an observation for azimuth, work was actually commenced from the 72nd mile post on June 21st, and carried out as follows: The 9th base line was run east a distance of twelve miles; from the 12-mile post a meridian line was run north for twelve miles. At the completion of this line no evidence was found of the line to be run by O.L.S. Beatty & Beatty. The meridian line was then run south for twelve miles, this point being about one-half mile south from the westerly end of Slate Lake. A line was then run west to a point near the 60-mile post on Ross's meridian line. The party now came back and completed the base line to the 24-mile post and ran a meridian line twelve miles north and twelve miles south from this point. The meridian line north was fifteen chains and forty-four links west from the 12-mile post on a corresponding line run by O.L.S. Beatty & Beatty.

"Wooden posts were planted at each mile and, where possible, a cairn of stones was built and bearing trees marked. When the mile point occurred in a lake a post was planted on the shore. Iron posts were planted at three-mile intervals in accordance with the instructions. Owing to the nature of the ground many of these took the form of witness posts.

"On the completion of the line work I proceeded to traverse a portion of the Wenesaga River waters, commencing at a standard rock monument placed by D.L.S. Pierce's party on the portage between Gull Lake and Hailstone Lake and tying into a wooden post planted by the Topographical Surveys Branch on the northerly shore of the Wenesaga River about three miles above Slate Lake in 1925. This traverse survey was also tied into the meridian line run south from the 24-mile post on the base line.

"The country in this area is for the most part gently rolling. Very few hills of any height were encountered. The ridges generally run northeast and southwest. There are a great number of lakes; the shore lines of these are very irregular.

"Near the meridian line run by O.L.S. Ross all the few outcroppings encountered were of granite. In the basin of Woman, Clearwater and Washagomis Lakes there were greenstones and some altered sedimentary rocks. As you approach the Wenesaga River along the base line, granite was again in evidence;

this appeared to be cut by a number of Hegmatite dykes. At the south end of the meridian from the 24-mile post on the base line, there was some iron formation.

"The lower lying land appears to be covered with clay soil while the ridges are sandy. Along the Wenesaga River the banks are clay for the most part, but back from the river a short distance the soil is sandy.

"A considerable part of this area was burned over a number of years ago and is growing up with jack pine, poplar and birch. This growth has now reached about three inches in diameter. Areas escaping the fire are timbered with spruce as large as twelve inches but for the most part not above six inches; jack pine to sixteen inches; large poplar, some thirty inches in diameter, and white birch. The large jack pine appears to be faulty.

"While this country is not particularly rough there are numerous falls and rapids on all the streams. The larger ones, Woman Lake River, Trout Lake River and Wenesaga River, would furnish considerable power but no great amount could be developed at any one place."

Appendix No. 21

Extract Township Outlines, district of Patricia, by Beatty & Beatty.

"In accordance with instructions dated the 19th day of March, 1926, we beg to submit the following report on the survey of the 10th base line, and certain meridian lines in the district of Patricia.

"We proceeded from Pembroke via the Canadian National Railway to Hudson where we organized our party. We engaged the Hudson's Bay Company there to take our party and outfit up Lac Suel to their post at Pine Ridge by means of a york boat towed behind a gasoline launch. This trip was made in about fifteen hours travelling. From Pine Ridge we travelled by canoe up the Winnesaga River, the Oochi River to Fly Lake, Clearwater Lake, Washagomis Lake and Long Lake or Swain's Lake to Shabumeni Lake. We chose this route to the other rout via Packwash Lake and Trout River, as the lakes were smaller and offered more protection against the wind. There are nineteen portages on this route, the longest of which is about sixty chains from Mud to Sucker Lake to the Oochi River. The portage from the Oochi River to Fly Lake is about forty chains. The remainder of the portages are short, varying from two to eight chains. All the portages are well cut out and the only bad feature of this route is the probability of the water in the Oochi River being low. The weather was bad on our trip in and it took us six days to make Shabumeni Lake. We made the trip out in two and a half days.

SOIL

"In the area covered, there is no land suitable for agricultural purposes. The soil is sandy with boulders and numerous outcrops of rock. Practically the whole district is covered with a layer of moss carying in thickness from three to eighteen inches. There are low ridges rising out of the swamps that are simply beds of boulders. It is estimated that 50 per cent. of the country is

swamp or muskeg. There are very few prominent hills as the country as a whole is gently rolling. West of Shabumeni Lake it is flat or undulating, and east of this lake it becomes more rolling but is not really rough excepting between Little Shabumeni Lake and Shabumeni River, and south of Springpole Lake.

TIMBER

"There is very little merchantable timber in the district at present. The greater portion being covered with a thick growth of black spruce and jack pine to six inches with patches of black spruce to eight inches. There is some fair black spruce and jack pine along the 3rd meridian between the 4th and 10th miles and along the 2nd meridian between the 6th and 12th miles, but these are the only areas and these are broken by numerous patches of swamp with black spruce to six inches. There are patches of young birch, poplar and jack pine to eight inches along the Shabumeni and Birch Lakes, but these do not, as a rule, extend back far from the lake. Young tamarack is growing up in some of the muskegs. Several of the large islands in Birch Lake have been burned over.

"The young spruce and jack pine are growing up very thickly on the ridges, and if fires are kept out there should be some very good timber before long. There were no fires in this district this summer, but we were bothered by smoke from fires to the south and southwest of us.

MINERALS

"There were no indications of minerals west of Shabumeni Lakes. There were good indications of minerals along the east side of these lakes where several claims have already been staked, also along the north shore of Shabumeni River. Several claims have been staked along the southwest bay of Birch Lake, some of which were staked several years ago. The country along the 3rd meridian and to the north of Springpole Lake, looked promising. Quite a lot of work has been done on several of the claims but we did not see or hear of any spectacular finds being made in this district up to the time we left.

STREAMS AND LAKES

"Fully 30 per cent. of the district is covered by water. Birch Lake is the largest lake. It is about eighteen miles long and its shore line is very irregular with many large bays, with islands over two miles in length. The water is very deep and clear. Shabumeni Lake is about ten miles long, average width about one mile, the water is deep and clear. Little Shabumeni Lake, to the north, is about five miles long and it empties into the former. Springpole Lake which was crossed by the 3rd meridian on the 8th mile, is over ten miles long, lying nearly east and west with a large bay to the north at the west end of it. Its water is deep and clear and the water from Birch Lake empties into it. We were not able to find the outlet to it but presume it flows into Gull Lake, an expansion of Cat River. There are several other large lakes in the district and the shore lines have been sketched on the accompanying plan from information gathered from the aerial photographs. There are very few large rivers in the district. What is called Shabumeni River is really a narrow bay of Birch Lake. The largest river is the Serpent River and it is navigable by canoes, but is seldom used. It has an average width of one and one-half chains and is about ten feet deep. It is navigable by canoes. The next largest river is the one which enters Shabumeni Lake from the west, referred to earlier in our report. Average width is about one chain and it is about six feet deep.

CANOE ROUTES

"The canoe routes have all been sketched on the accompanying plan along with the portages and their approximate lengths. The main route runs along the Shabumeni Lake, Shabumeni River, Birch Lake, Keigat Lake and north-easterly through Jackpine Lake to the Cat River. There is also a route running south and east from Springpole Lake to the headwater of the Winnesaga River and to Cat River. None of these routes had been used much recently until this year, but the fire rangers are getting the portages well cut out and blazed, and where necessary corduroyed.

"We did not find any falls capable of power development.

GAME

"Bears are fairly plentiful in this district. Signs of moose, deer and caribou were seen but none of these are very plentiful. There were more signs of moose than of the others, but very few of these were seen.

"Owing to the absence of birch and poplar, with the exception of the shores of the big lakes, very few indications of beaver were seen, but a few new dams were noticed on some of the smaller streams.

"Pike and pickerel are very plentiful in Birch and Shabumeni Lakes, and there is no doubt but there must be white fish and lake trout in these and Springpole Lake. We did not meet any Indians or trappers and were unable to gather any information in this way.

"There were the usual summer frosts and ice was found in thick swamps all summer. The season was exceptionally wet, there not being more than fifteen days all summer that it did not rain at night or during the day. The water in the lakes and creeks appeared to be exceptionally high all season."

Appendix No. 22

Copy of Speight & vanNostrand's report of the 9th meridian line, district of Patricia.

"We have the honour to submit the following report on the survey of the part of the 9th base line in the district of Patricia lying between the meridian line run by Kenneth Ross, O.L.S., in 1920, and the Manitoba Boundary. Our instructions from your department for the performance of this work are dated 2nd March, 1926.

"The instructions containing a stipulation that the work was to be done as early in the season as possible, preparations were made to assemble the survey party necessary at the earliest date by which we felt danger from ice would be over, but unfortunately, at the last moment, unexpected complications made it necessary to postpone the date of assembly for a few days. The party, fourteen men all told, however, left Sioux Lookout on 31st May, and the work being prosecuted diligently from that time on, we believe that the base line was available for surveyors before it was actually required by way of them.

"The party followed the usual canoe route via Pine Ridge, Pawkwash Lake, Trout Lake River and Woman Lake River to Bear Lake. Our point of commencement on O.L.S. Ross' meridian, was about two and a half miles inland from Bear Lake, and was reached on June 7th, after a trip uneventful except for some delay with wind and rain.

"Work on the line was commenced the next morning, the line being cut westward, as instructed, from mile 72 on the meridian.

"At the latitude of our line, the convergence of meridian amounts to six and four-tenths minutes in six miles and the base line was accordingly deflected to that extent at each sixth mile, in order to follow the chords of the parallel of latitude.

"A two-chain steel band was used for measurements throughout the survey. On broken ground, measurements were made with the aid of a clinometer and the horizontal distance was deduced from the vertical angle. The country abounds in lakes, and consequently numerous triangulations (sixty in all) were required. Triangles in the 2nd, 16th, 18th, 84th and 93rd miles will be seen from the field notes to have the angles at the apex slightly less than ten degrees. In no case, however, is the deficiency greater than twenty-five minutes of arc, and the base in these instances was selected with a view to accurate chainage in preference to a longer base over broken ground. For the triangulation at Otter Lake, mile 16, a base was cut to the north of the line and abandoned as not suitable, and the base finally used to the south was restricted by an island near the line.

"Frequent observations on Polaris were taken throughout the survey, and the results of these are appended to the field notes. The wooden posts planted at each mile were made of spruce or jack pine. All were at least six inches square and firmly planted. A substantial stone mound was built around each post if stones were available and with a few exceptions, where no timber was standing within a reasonable distance, each post was referenced to two bearing trees. An iron post was planted to mark each third mile. In general the standard post thirty inches long was used, but short iron posts were substituted in several places, as recorded in the field notes. The short iron post with its accompanying pyramid seems a desirable monument and more could have been used in this particular survey had they been available. The last point crossed by our line before entering the bay of Carroll Lake, where the line intersected the Manitoba boundary, was of a rocky nature, and it was possible to plant the standard iron post in the usual way with pits and mounds. It was, therefore, built about by a substantial cairn instead.

"Adjacent to the shores of lakes crossed by the line, the width of the cutting was increased so as to obtain a sky line width of ten to twelve feet for a distance of about two chains back from the shore. Similar extra width was cut on the summits of the larger hills. In addition, a considerable proportion of the mileage was through second growth jack pine, and the ordinary cutting produced a natural sky-line which we have no doubt would be readily discernible from the air under proper conditions.

"Points used last year by Dominion Land Surveyor Christie, in traversing the water route between Carroll and Red Lakes, were tied in by us and are recorded in the notes of our 60th and 66th miles. In general, however, his traverse lay considerably to the south of our line.

The aerial photographs from flights FA 64 and FA 65 of the R.C.A.F. covered, for the most part, an area somewhat south of the base line, and we

found it impossible to distinguish on many of the photographs any of the physical features crossed by our line. We have, however, marked on a number of them the position of our work.

"The topographical survey maps of Red Lake district and the preliminary blue print based on O.L.S. Christie's traverse and aerial photographs were found very accurate, greatly facilitating the handling of supplies. This was especially true from Pipestone Bay westward, as none of the Indians of Red Lake seemed to be familiar with the water routes between Pipestone Bay and the boundary line.

"The total chainage of the line to the point where it intersected the Manitoba boundary was ninety-six miles, forty-one chains and seventy links.

"The boundary was reached on August 12th, and the party returned to the railway at Hudson via Red Lake, reaching the track on the 19th day of the month. In the general, the summer was perhaps somewhat more rainy than the average, although the latter part of July and the early part of August were hot and dry.

GENERAL FEATURES

"No outstanding topographical feature dominates the territory crossed by our line, unless the straggling expanse of Red Lake could be considered to do so. Ridges and low hills succeed one another with considerable regularity, but none of them rises to any great height. The surface is broken rather than rugged, for the glaciers have done their work of grinding off the mountain tops very thoroughly. Innumerable lakes dot the landscape. Many of these are of great beauty and some of considerable extent. West of Trout Lake the line crossed a long ridge which apparently is the natural dam containing the waters of that lake, and descended into a broad valley, broken, of course, by minor ridges which extended to within a few miles of Red Lake. In the valley we found a considerable area of clay soil. Observations while on our way in to the line, and later, would lead us to believe that there is a clay belt extending from north of our line well to the south, and that eventually the section will be developed for agricultural purposes.

"East of Trout Lake, and from Red Lake to the boundary, the country traversed by us depends for its value on its timber, its beauty, and its fish and game. From about four miles east of the east bay of Red Lake until we crossed the ridge west of Slate Bay, we found the country completely staked by prospectors, and on a number of claims exploration work was being vigorously prosecuted. Except in this one section the rock encountered was granite.

SOIL

"As stated above, between Red and Trout Lakes there is an area which will no doubt be eventually developed for farming purposes. East and west of this, however, we crossed no considerable stretch of agricultural land, finding only a few narrow valleys where the soil promises any return for cultivation.

TIMBER

"Comparatively little of the areas along the line could be classified as burnt. On the other hand, not much of the timber is yet old enough for commercial use. Jack pine predominates, with perhaps a third of the forest consisting of spruce. Poplar and birch are mostly small and are found in limited quantities. Black ash was noted in a swamp near Red Lake, but cedar was not

encountered anywhere on the line. Apparently a very extensive fire, or series of fires, about forty years ago, cleared most of the timber from this country, and it is only where the forest was protected by open water or extensive swamps that mature wood is now standing. The new growth, however, is vigorous and seems free from disease. Provided it escapes further visitation by fire, there should be a valuable stand of jack pine and spruce in a comparatively few years more.

ROCK

"The line crossed Red Lake slightly north of Mackenzie Island, and from about four miles east of East Bay to the vicinity of Mile 45, Keewatin intrusions were noted in the rock. This section has, of course, been receiving a great deal of attention from prospectors for the past year or so, and has been mapped geologically by the Department of Mines. Along the remainder of the line nothing was seen to suggest the possibility of economic minerals, the country rock being entirely granite.

WATER POWERS

"The line intersected only two river valleys of any importance whatever the Trout Lake system being crossed at Otter Lake, and the Chukini River crossed at Red Lake. These are relatively small streams, although, owing to the large lake areas, they are capable of admirable control. Trout Lake is considerably higher than Red Lake, and there is consequently more power available on the Trout River than on the Chukini.

CANOE ROUTES

"There is now a regular service for passengers and freight from the Canadian National Railways at Hudson to Pine Ridge, and a motor boat service from that point to Snake Falls, at the head of Pawkwash Lake. From Pawkwash Lake to Bear Lake, to Trout Lake and to Red Lake, we found the canoe routes excellent, with portages relatively short and well cut out. Between Red Lake and the boundary we utilized the canoe route traversed last year by D.L.S. Christie. This route is apparently little travelled west of the point where the route to the Bloodvein River branches off. As the route in a general way paralleled our line, however, we found it very useful, and for the most part reasonably easy. We considered heading for the railway southward along the boundary from the end of our line, and were assured by some that there was a first-class route in that direction. We could locate no guide, however, and owing to the immense number of lakes and bays in which much time might be lost, we thought it best to retrace our way to the railway via Red Lake.

FISH AND GAME

"Moose, caribou and red deer were seen during the summer, and were fairly plentiful. Very few beaver signs were noticed, and we understood that not many are trapped in the area. Muskrats were extremely plentiful in a number of the streams near the boundary. Of the other fur-bearing animals it is difficult to judge in the summer. Partridge seem to have had a bad season or two, and were very scarce. Rabbits, on the other hand, were plentiful, especially from Red Lake eastward. The members of the party made fine catches of trout in Trout Lake and elsewhere, and there was generally no difficulty in keeping the party supplied with fish when on the larger lakes.

Appendix No. 23

Report by Ontario Land Surveyors Phillips and Benner, dated 1926, of base and meridian lines in the district of Rainy River.

"We have to report that in accordance with instructions issued by your department dated March 23rd, 1926, we have surveyed certain base and meridian lines in the district of Rainy River.

"The iron post planted by O.L.S. Henry DeQ. Sewell in 1888 at a distance of fifteen miles seventy-six chains and seventy-two links west from the district line between Thunder Bay and Rainy River on his base line was located and a base line run west from this point planting our seventeenth mile post at a distance of eighty-three chains and twenty-eight links from the starting point and continuing the numbering of the mile posts up to thirty. The first mile post after the 30th was numbered one and the numbers carried on from there to the end of the line at Lac la Croix where a connection with the international boundary survey was made.

"From the 30th mile post on the base line, a meridian was run south to Basswood Lake where a connection was made to the international boundary survey. A meridian was also run north from the 30th mile post on the base line to intersect a base line run in 1891 by O.L.S. A. Niven, near Atikokan.

"The work was carried out according to instructions, iron posts being planted every third mile except where this point came in a lake or river when the iron post was planted on the nearest shore and the chainage marked thereon. The country travelled was in general rough and rocky with no extremely high hills. The soil is mostly sand and gravel, but boulders and rock predominate. The rock formation throughout, except for a short distance south of Atikokan where the Keewatin is present, is granite. As show on the maps, lakes are plentiful. Most of the larger lakes met with are shown on the existing maps which are fairly accurate as far as they were tried.

"Game was not as plentiful as would be expected in a reserve of this nature. Some moose, deer and bears were seen, beavers appear to be very plentiful, almost every lake having its shores flooded by their work. Trout, pike and pickerel are plentiful in most of the lakes.

"In the country passed through a considerable proportion of the timber has been destroyed by fire. The following stretches have been burnt in recent years and are growing up with small second growth and underbrush, from the starting point on the base line to the 26th mile, the area adjacent to Conmee Lake on the south side; from the 8th mile to Minn Lake, on the meridian line south from the base line; from the 12th mile south to Basswood Lake, on the meridian line north, from Jesse Lake to the north end of the line; in this latter area timber has been cut at various times so that there is nothing of value at present. The remainder is variously timbered with jack pine, white pine, Norway pine, spruce, balsam, poplar, birch and maple varying in size from four inches up to timber of commercial value. In the burnt areas there are isolated stands of Norway and white pine which have survived the fires but these are not extensive as a rule.

"This portion of the province appears to be ideal for the purpose for which it was set aside.

Appendix No. 24

Extract from J. S. Dobie's report of traverse Allanwater and part Ogoki Rivers, district of Thunder Bay.

"As in previous seasons posts were planted at intervals of about a mile apart along the shore. These posts were tied to the nearest transit station and the tie recorded in the field notes. Each post is surrounded by a mound of stones about five feet in diameter and about two feet high. Each post was marked with the letter 'P' followed by the number of the post, the whole being inscribed with a proper scribing iron.

"The islands were also numbered consecutively. On each island either a post was planted in a manner similar to that already described and marked with the number of the island, or a healthy tree was squared and similarly marked. In a few cases small islands were not marked, where the islands were low and without trees large enough to mark, and where the exposed position of the island would make it probable that floods or ice would remove the post, or where there were not stones to make suitable mounds. Any such islands are very small and are easily identified by reference to the plan.

"Standard metal posts or monuments were cemented into holes drilled into the rock at regular intervals along the shore in a manner similar to that described in previous years. Twenty-five such posts were planted during the season.

"Levels were taken at all falls and rapids, and are all based on the elevation of a Geodetic survey bench mark set in the west concrete abutment of the Allanwater railway bridge. This bench mark is recorded as Number 1023, elevation 1353, 9194. No attempt was made to carry levels across large bodies of water, but immediately after ascertaining the elevation of any lake expansion, a water gauge was established so that if the water level varied before further levelling was necessary, the difference could be properly allowed for. In case of long stretches of river with perceptible current the differences in elevation were estimated, proper allowance being made for variation in water level due to rain or other conditions. The elevations of the various lake expansions and other stretches of still water are all shown on the plan which forms part of the returns of this survey and are to be considered as approximately correct. They are subject to future revision but it is considered that they are correct enough for all practical purposes for some time to come.

"The Allanwater River crosses the Canadian National Railway a short distance east of the point of commencement of the survey. There is here a small lake expansion with a long bay running to the northwest for a distance of over three miles. About a mile downstream from the starting point a dam has been constructed across the river by a local lumber company. This dam has raised the water about four feet and considerable difficulty was experienced in carrying the survey past some of the flooded ground.

"From this dam the river runs a little east of north for two miles and then turns sharply to the east for half a mile, where it branches and runs around a large island nearly four miles long. This island is No. 7 and contains 1,676 acres. The westerly channel is the one most used for canoe traffic. The river generally is shallow and stony with several flat rapids.

"A water power reserve of 32.67 acres was posted at the first rapids below where the river divides to flow around island No. 7. There is here a fall of about seven feet, and the water possibilities are not very great as the nature of

the ground will not permit of the concentration of a high head, notwithstanding the fact that there are several rapids upstream which might be added to this one. It would be necessary to dam the channel around the east side of No. 7 in order to develop a power at this point. It was considered advisable to lay out a water power reserve at this point, however, as there does not appear to be any possibility of concentrating the falls farther upstream at any other point.

"The projected lines of this and other water power reserves laid out during the season were posted near where they would interest the shore and the posts tied to the nearest transit station, but in no case were the boundaries of any water power reserve cut out on the ground.

"After passing island No. 7 the river flows north for nearly three miles, passing several rapids at none of which does there appear to be much chance of water power development. At island No. 44, however, the river drops about twenty-one feet in a very short distance. The banks are high and rocky and a high rock ridge extends across the greater part of island No. 44. A very good power could be developed here, as the natural head of twenty-one feet could be easily increased to forty feet or probably more. There is a very good volume of water and the large lakes south of the Canadian National Railway afford splendid storage facilities. A water power reserve containing sixty acres was laid out here.

"There are several rapids between island No. 44 and Brennan Lake, but the possibilities of power development at any time are practically nil.

"The country adjacent to the lakes and rivers surveyed during the season is generally speaking, rocky and rolling with many low undulating ridges of stones and boulders. There are some fairly high hills to be seen to the south of Granite Lake, but they are the exception rather than the rule. There are not as many sand beaches along the shores of the lakes as one would expect. From Wabakimi Lake downstream, the shores are usually low and stony, but there are some prominent rock ridges and some of the highest hills seen during the season are near Kenoji and Oliver Lakes. Generally speaking, however, the country is one of low relief.

"Throughout the whole survey the timber characteristics remain much the same. Considerable areas are to be seen here and there of old spruce, jack, pine, poplar, birch, etc., but the greater part of the country is covered with second growth timber of varying ages. A very large amount of this timber is now approaching a size suitable for cutting, and every year adds to its value. It was frequently noted by members of the party that whenever it was necessary to go inland for any purpose even for only a short distance, the timber appears to be much more valuable than a casual inspection from the shore would indicate, and I may say that my own experience corroborates this view.

"There is an immense amount of timber suitable for pulpwood, boxwood, etc., although the proportion of saw-log timber is comparatively small. The time will come when the timber resources of this territory, combined with the water power possibilities will be assets of very great value to the Province.

"There are several burnt areas of large extent, the ones south of Granite Lake and of Wabakimi Lake being the largest. There were no signs of recent fires which may in part be attributed to the fact that it was an unusually wet season.

"As the survey progressed notes were taken from every transit station as to the general characteristics of the shore with notes as to timber, soil, etc. These notes are all in the field notes, and they have been put on the plan which

goes with this report to as great an extent as possible. A reference to the plan will therefore show information regarding the kind and character of timber in any given locality in much greater detail than can be given in the body of this report.

"The territory surveyed does not appear to be particularly attractive from a mineral standpoint, as practically no rocks were seen except granite and gneiss. There were no marked instances of local magnetic attraction, the variation of the magnetic compass being very constant. It averaged about one and a half degrees to the east where the survey started, and gradually decreased to about one degree on Whitewater Lake.

"Fish and game of the usual varieties appear to be fairly plentiful. The lakes contain pike and pickerel in large numbers, and the larger lakes are said to contain whitefish. Moose and deer were seen occasionally and once in a while a caribou was seen. The usual fur-bearing animals are fairly plentiful with the exception of beaver which appear to have almost vanished from this section of the country. Local trappers report average success during the preceding winter. They all, however, unite in lamenting the fact that the beaver have nearly disappeared.

"The detail plan of the survey has already been forwarded to your department, and I enclose herewith field notes on the regulation paper, list of permanent monuments and a tabulated form showing the location and a description of each island surveyed during the season."

Appendix No. 25

Extract of report of Phillips and Benner of Lower and Middle Shebandowan Lakes, district of Thunder Bay.

"The field work was commenced at the easterly end of Lower Shebandowan Lake on May 4th, and survey of the two hundred locations (P.P. 178 to 317) on this part of the lake was completed on July 14th. The party then moved into Middle Shebandowan Lake and the survey of two hundred locations (pp. 318 to 517) on this portion of the lake was completed on September 26th. Although the lake had been previously traversed by A. L. Russell, O.L.S., it was found necessary to make a new traverse of those portions of the shore line in front of the sites chosen as suitable for resort purposes, as the stations established in the original survey had become lost.

"During the progress of the survey a memorandum was kept of the various characteristics of the individual lots. This will be found detailed in the field notes on pages 61 to 84 inclusive. After the survey of each portion of the lake was completed a sketch plan was supplied to your department showing the numbers of the locations and the areas of the same. A table of estimated values of each location was also made and forwarded to you.

"There is a small settlement known as Stewart's Spur at the east end of Lower Shebandowan Lake. There is a small saw mill here and also a number of residences. The other improvements noted were a small shack on location

S.F. 16, a large cabin on S.F. 23 or S.F. 24, a good dwelling house and other buildings on S.F. 21, and a few old logging camps. The only improvement noted on the Middle Lake was a small shack on W.T. 22.

"The Dawson Road which comes to the Lower Lake at Stewart's Spur has been recently improved so as to be passable for light cars, but considerable work will be necessary before the road will be in shape for general motor traffic. There is a good trail north from the east boundary of W.T. 9 in the Middle Lake. This runs to Kabaigon Siding and could be made a good road.

"The best beach on either lake is on the west side of Castor Island. There are numerous other small ones in both lakes, but it was not possible to get a sandy beach for each location. From our experience in surveying resort locations for individuals we find that the majority of applicants are not so anxious to have a good beach as they are to have a good site with a commanding view.

"The level of the lake is maintained at or near high water by a control dam at the outlet of the lake. There is very little flooding done and most of that is in very low marshy lands which would be wet anyway.

"There have been no forest fires of any extent on either lake in the last thirty years, and the shores are mostly well timbered with a good stand of mixed timber—poplar, birch and jackpine being the predominant species. We understand that most of the timber surrounding the lakes is in a limit, and would advise that the license holder be restrained from cutting on the surveyed locations. There is very little timber of value on these, but it would lessen the value of the lots if it were cut.

"The shore lines are mostly rocky or strewn with boulders. It is reported that there are considerable areas of good land in from the lake, but the general appearance of the country would not lead one to expect to find much land suitable for agriculture.

"The water in the Lower Lake is rather dark in colour near the east end but is fairly clear around Castor Island. In middle Lake it is clear and is reported to be very deep in places. The only fish caught were pike, though there are lake trout and whitefish in the Middle Lake. Game is not plentiful.

"These lakes should be very attractive to persons wishing to establish summer camps. There is about a thirty mile stretch of water without a portage from Stewart's Spur to the west end of Upper Shebandowan Lake. The few rocks which would be dangerous for high speed gas boats could be marked in a short time.

Appendix No. 26

Extract from report of R. S. Kirkup's survey of the Townships of Echo, Pickere! and Vermilion, district of Kenora.

"I have the honour to report that in accordance with your instructions dated 5th October, 1925, to survey the townships of Echo, Pickere! and a portion of the township of Vermilion, in the district of Kenora, I started in with my party from Sioux Lookout on October 20th. We were fortunate in having a water route all the way in to practically the southeast angle of the township of Echo, where I commenced the survey.

MINING CLAIMS

"Whenever any old lines were struck, they were examined carefully and if any posts were found they were tied in and shown on the map attached hereto. The areas of these claims I deducted from the lots in which they were situate, although it was impossible for me to tell whether they had been patented or not. The formation is Keewatin.

AGRICULTURE AND TIMBER

"The land in all three of these townships is very fertile, and when the timber is cut and the land cleared and with the added advantage of the proposed road to Sioux Lookout, they should make very fine farming communities in the near future. The standing timber is shown on a plan which accompanies this report, and while there is no outstanding quantity, it is distributed over nearly every lot and will be of great value to the future settler.

FISH AND GAME

"In previous reports I have stressed the importance of this area with regard to fish and game. They are very plentiful, and would be a great attraction to tourists if closer to some large centre of population.

CANOE ROUTES

"These with the portages and their distance may be seen on the plan. The portages are not very well cut out in some cases, but in the main are fairly good travelling."

Appendix No. 27

Extract from report of E. Fitzgerald's survey of lakes and islands in the Townships of Elmsley, Burgess and Crosby, surveyed 1925.

"The survey was commenced at an old cedar post marking the southwest corner of lot 6, concession IV, township of Burgess, where an observation was taken on polaris for azimuth. The survey was conducted in the ordinary method of stadia survey, that is to say: All measurements were made by means of stadia, bearings being carried on by use of the transit. Throughout all this work a transit having a large telescope was used to ensure accuracy in both measuring distances and angles. Readings were taken to the shore line of both mainland and the islands at intervals of approximately five chains where the shore line was regular and at closer intervals where necessary to ensure an accurate projection of the same. Observations were taken at frequent intervals to check the bearing of the lines. Our point of commencement was designated as station 268, and from thence the stations number consecutively throughout the whole survey, thus showing in exactly what order the work progressed. The survey of the smaller lakes was connected to that of the main lakes by the same method of traverse.

"The elevations of the various lakes were determined by carrying levels from the nearest bench mark, which in all cases were those given in Altitudes of Canada by White. The elevation of Rideau Lake was derived from the elevation of base of rail in front of Canadian National Railway Depot at Smith's Falls; thence taken over the lock at Poonamallie. That of Otty Lake and Bass Lake was derived from the elevation of Rideau Lake. The elevation of Otter lake was derived from the base of rail in front of Lombardy Station on the Canadian National Railway. The elevation of Indian Lake was taken from the base of rail at Canadian National Railway bridge over the Rideau Canal at Chaffey Lock and this also applied to Newboro, Loon and Clear Lakes which are all the same elevation. The elevation was carried over the locks at Newboro, thus arriving at the elevation of Upper Rideau Lake and from here it was carried into Sand Lake. The elevation of Black Lake and Pike Lake was carried from Adam Bay on Rideau Lake. The lakes were, as near as could be ascertained, at their normal level when these elevations were taken.

"Throughout the survey of the main shore, trees were marked at intervals of about one mile for reference marks of the survey. These trees were blazed in a conspicuous manner and marked by means of a scribe with a letter and a number in Roman numerals, the letter indicating the lake and the number indicating the tree. These trees are recorded in the field notes and also on the plan. A tree was also blazed and marked on each island, and on large islands several trees were marked."

Appendix No. 28

Extract of report of Messrs. Beatty & Beatty—Survey of lakes in the Township of Bedford.

"Under instructions dated April 15th, 1925, to survey the lakes in the township of Bedford, in the county of Frontenac, together with portions of West Rideau, or Wolfe Lake, Bob's Lake, Crow Lake, Buck Lake and other small lakes which extend southward into the township of Loughborough, I beg to submit the following report:—

"I proceeded to Crow Lake Station by Canadian Pacific Railway from Pembroke, and was joined by the other members of my party, which consisted of A. J. Bennett, as assistant; James Brown, as cook; E. S. Touzel, Gordon Watt and A. E. Parks, as rodmen and canoe men.

"My transport consisted of two sixteen foot canoes which were used on the work, and a larger freight canoe which was used to move camp. If it was impossible to move by canoes, teams were engaged from the farmers.

"A stadia transit survey was made and pencil plots were made in the field. The latitudes and departures of the courses were reduced to act as a guide to the plotting, and the closings of all the closed blocks were calculated. Wherever possible ties were made to the old lot corners, or to where the old posts were supposed to have been. The township of Bedford is very rough and sparsely settled, and the old surveys having been made so long ago, these were very scattered.

"Crow Lake was the first lake surveyed, and from here I carried my traverse to Bob's Lake, and thence to White Lake. From White Lake I traversed through Barrett's Pond into Potspoon Lake, and thence through Thirty Island Lake into Thirteen Island Lake and into Desert Lake. From here I traversed to Sand Lake and into the southern portion of Canoe Lake. From here I traversed through Eel Lake into Mud Lake and then into Buck Lake. From Buck Lake I traversed through Little Salmon Lake and into Clear Little Lake, into Black Lake and thence into Big Salmon Lake. From here I traversed through La Belle Lake into Big Clear Lake and into Buck Lake. From Buck Lake I traversed across to Hamilton Lake, and from Buck Lake I traversed north through Pollywog Lake to Devil Lake. From Devil Lake I ran side traverses to Crow Lake, Moulton Lake, Christie's Lake, Wolf Lake and Cameron Lake. I then ran a tie traverse to tie onto my survey of Mud Lake. I found that the easiest way to reach Elbow and Pond Lily Lakes was to continue my traverse from Sand Lake. I completed my traverse of Canoe Lake and ran tie traverses to Horseshoe Lake and Garter Lake. I ran a tie traverse to the Ponds west of the village of Fermoy and ran a tie traverse to Long Pond. I then continued my tie traverse through the village of Fermoy to West Rideau Lake. From here I ran side traverses to Judy's Pond and Green Lake. The traverse of West Rideau Lake completed the season's field work.

"The township of Bedford is an exceptionally rough township. There is by far more water than there is arable land. In the southern portion there are very few farmers. The most thickly settled portions are surrounding the village of Burridge and to the south and east of West Rideau Lake. This latter section is an exceptionally good farming district. The farmers' chief source of revenue is from dairying and simply grow enough crops for feed for their stock. There are several cheese factories in the township.

"There are several abandoned mica and feldspar mines, the largest of which was the Richardson mine situated between Desert Lake and Thirteen Island Lake. This mine has been exceptionally well equipped and as much as 90 tons of feldspar a day have been shipped from it. There had been also an iron mine on Black Lake north of Thirty Island Lake. This ore was also shipped by this open line.

"There is very little merchantable timber in the township now. There are a few isolated patches, but these are very small. The old timber has been cut off and there have been several fires through it. Owing to the roughness of the country the young trees are growing very slowly. Tett Brothers, of Bedford Mills, have quite a lot of the southern portions held as a limit.

"The weather this season was exceptionally wet and cold. There were no summer frosts and there was very little real warm weather. There was quite a lot of wind and generally from the southwest. This retarded the work on the larger lakes, as they all lie in the general direction of northeast and southwest. The water was high in the lakes all season on account of the rain, and very little had been drawn off the lakes used for storage purposes.

"There were quite a number of American tourists visiting the lakes during the summer. The majority of these came from Rochester, New York, and Ithica. The large number of lakes in the township and district attracts them, as if the fishing is not so good in one lake they go to another. They invariably come in cars and brought lean-to tents, which they pitched alongside the cars, and rented boats from the farmers, and in some cases engaged the farmers as guides. A few of the farmers took in summer boarders. There were three small cottages owned by the farmers for rent, but these cottages were rented by Canadians

from Toronto and Kingston. About fifty per cent. of the cottages are owned by Americans. There are very few cottages erected on the islands; the tourists prefer to be able to reach their cottages direct by their cars if possible.

"The fishing this season was poor in comparison with other years. There are fish in all the lakes. Pickerel and bass are the most plentiful of the game fish, and rock bass and sun fish are so plentiful they are a pest. The pickerel range as high as eight pounds and bass up to four pounds. Salmon or grey trout are found in the following: Crown Lake, Green Bay of Bob's Lake, Desert Lake, Canoe Lake, Buck Lake, Salmon Lakes, Big Clear Lake, and Devil Lake. Buck Lake seems to offer the best fishing of all the lakes. The size of the salmon varies from three to fifteen pounds.

"Herewith are descriptions of the general features of the lakes and the islands in them. A value has been placed on the small islands which are desirable for cottage purposes. Islands large enough for cottage purposes and large enough to be subdivided into two or more parcels are noted. It is presumed that these islands would be divided into parcels of two or three acres."

Appendix No. 29

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
							Bid	Upset price	Dues		
1925 Oct. 24	1925 Nov. 4.	Island in Clearwater Bay north of Corkscrew Island, Berth M. 20, Lake of the Woods.	1	1	Lake of the Woods Milling Co., Keewatin, Ont.	Poplar Pulpwood.....	\$0 20	\$0 50	\$0 40	Pulpwood	60816
Oct. 24	Nov. 4.	Melick Township.—Lot 9, Con. 4.	1½	1	J. Peterson, Kenora, Ont.	Pine..... Spruce.....	..... .....	3 50 4 00	2 50 2 00	Logging	9477A
Oct. 26	Nov. 5.	East part of Shammis Island, East-231. South-70. East part McA. 113, Lake of the Woods.	1½	1	Philip Dorion, Kenora, Ont.	Cedar Poles: 30 ft. and less 31 ft. to 40 ft..... 41 ft. to 50 ft..... 50 ft. and over.....	0 10 0 15 1 00 1 50	..... ..... ..... .....	0 25 0 50 0 75 1 00	Logging	60702
Oct. 21	Nov. 4.	East of Timber Berth G-19. West of Block 6, Little Turtle River, District of Rainy River.	8	1	B. V. Holmes, Fort Frances, Ont.	Red and White Pine.... Spruce Pulpwood..... Jack Pine Pulpwood.....	1 00	7 50 0 10	2 50 1 40 0 40	Logging Pulpwood	18648
Nov. 4	Nov. 25.	Berth J.A-1, south of C.N.R. at La Seul, Ont., District of Rainy River.	3	1	J.A. Mathieu, Ltd., Rainy Lake, Ont.	Red and White Pine..... Jack Pine..... Jack Pine Pulpwood..... Spruce Pulpwood..... Balsam Pulpwood..... Cedar Posts..... Cedar Poles: 30 ft. and less..... 31 ft. to 40 ft..... 41 ft. to 50 ft..... 51 ft. and over.....	..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....	6 00 3 00 0 25 0 50 0 75 0 50	2 50 2 50 0 40 1 40 0 70 0 02	Logging Pulpwood	16062

Dec. 4.	Dec. 14.	Island in French River east of North Channel, opp. Scollard Township, A-38, A-39, A-41, A-42, A-43, District of Sudbury.	3	4	T. N. Desmarais, Sudbury, Ont.	Green Standing Timber. Dead and Down Timber.	6 25	..... 2 50 2 50	Logging	61065
Dec. 23	1926 Jan. 9	Milner Township, E. 1/2. Leith Township, N.-E. 1/4. Temagami Forest Reserve District of Temiskaming.	27	1	W. T. Craig & Sons, Gowganda, Ont.	Red and White Pine....	0 50	5 00	2 50	21011
Dec. 23	Jan. 9	Machin Township lots 25 and 26, con. 7, District of Cochrane.	1 1/2	1	Castonway & L'Italien, Fauquier, Ont.	Spruce and Balsam. Spruce Pulpwood. Balsam Pulpwood. Poplar Pulpwood.	..... 4 00 0 50 0 40	2 00 1 40 0 70 0 40	Logging Pulpwood	26805
1926 Jan. 22	Feb. 9.	Fallon Township, N.-E. and S.-W. 1/4, Cleaver Township, W. 1/2, Temagami Forest Reserve, District of Temiskaming.	36	1	Night Hawk Lumber Co., North Bay, Ont.	White Pine. Jack Pine. Spruce. Spruce Pulpwood. Balsam Pulpwood. Other Pulpwood.	2 00 1 00 1 20 0 60 0 30 0 25	7 50 4 00 4 00 1 40 0 70 0 40	Logging	51399
Feb. 17	Feb. 24.	Cobden Township, N. 1/2—Lots 4 and 5, con. 5, District of Algoma.	1 1/2	1	Michael Tossie, Blind River, Ont.	Pine Cord Wood.....	.....	0 25		12150
Feb. 18	Mch. 1.	Smythe Township, S 1/2—Lots 10 and 11, con. 2, District of Temiskaming.	1 1/2	1	Craig Bros., Elk Lake, Ont.	Jack Pine. Spruce. Poplar.	0 50 0 50 0 50	3 50 3 50 2 00	2 50 2 00 2 00	60300
Mar. 1	Mar. 23	South of Timber Berth K-18 and west and south of Norway Lake, south of English River, District of Kenora.	7	2	Masahba Developing Co., Ltd., Port Arthur, Ont.	Jack Pine. Hewn Ties.	2 10 0 07	4 00	2 50 0 10	37584

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
							Bid	Upset price	Dues		
Jan. 4	Feb. 8	Ivanhoe and Foley Townships vicinity of Can. National and Temiskaming and Northern Ontario Railway, District of Sudbury, Boston Township, except S.W. pt. E. $\frac{1}{2}$ of Langmuir and Blackstock Townships and all of McElroy and Lee Townships, District of Temiskaming, Thomas Township, District of Cochrane.	351	1	C. Howard Smith, Montreal, Que.	Poplar Pulpwood.....	0 02	0 10	0 40	Pulpwood	61186
Mar. 4	Mar. 22	Township 9-Z, Mississaga Reserve, Sections 1, 4, 5, 7, 10, 13, 16, direct to Spanish Waters.	7	1	Pratt & Shanacy, Midland, Ont.	Red and White Pine.....	0 10	4 50	2 50	Logging.	22102
Apr. 20	May 5	Sharpe Township—Lots N. $\frac{1}{2}$ 9, S. $\frac{1}{2}$ 10, con. 5, S. $\frac{1}{2}$ 9 and N. $\frac{1}{2}$ 9, con. 6. Traux Township—S. $\frac{1}{2}$ 3 and N. $\frac{1}{2}$ 5, con. 6.—District of Temiskaming.	1 $\frac{1}{2}$	1	Joseph Myers, New Liskeard, Ont.	Jack Pine..... Spruce..... Poplar.....	0 05 0 05 0 05	4 00 0 50 0 10	2 50 1 40 0 40	Logging.	29016
May 10	May 25	Burns Township.—Lots 26, 27, cons. 5 and 6.—District of Renfrew.	1	1	James Bonfield, Ottawa, Ont.	Hemlock..... Balsam and Spruce..... Hardwood..... Cedar..... Hardwood Ties.....	1 05 0 75 0 25 0 50 0 10	2 00 3 00 5 00 4 00 0 15	1 50 2 00 2 50 1 50 0 10	Logging.	20277

May 25	June 22	Godfrey Township. — S.E. quarter, lots 1 to 6, cons. 1, 2 and 3.—District of Cochrane...	9	1	H. H. Rudolph, Weston, Ont.	Jack Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood..... Cedar Posts..... Cedar Poles: 30 ft. and less..... 31 ft. to 40 ft..... 41 ft. to 50 ft..... 51 ft. and over.....	2 65 5 15 0 25 0 20 0 10 0 01 0 25 0 50 0 75 1 00	4 00 2 00 0 40 0 30 0 10 0 01 0 05 0 10 0 15 0 25	2 50 2 00 2 00 1 40 0 70 0 40 0 02 0 25 0 50 0 75 1 00	Logging. Pulpwood.	40731
June 29	July 27	Melachi Township.—Lot N. E. pt. 1, con. 3, pt. 1 and 2, east of Narrows, con. 4, lot 1, pt. 2, east of Narrows, con. 5, lots 1, 2, 3 and 4, east and north of Narrows. Pelican Township not subdivided. "Above known as Berth M-19." — District of Kenora.	5¼	1	J. W. Short, Kenora, Ont.	Jack Pine..... Spruce..... Balsam..... Jack Pine Pulpwood.....	..... ..... ..... .....	2 75 0 10 0 10 0 10	2 50 2 50 0 70 0 40	Logging.	16093
July 6	Aug. 3	Pardo Township.—District of Nipissing.	14½	3	Mageau Lumber Co., Ltd., Field, Ont.	Red and White Pine....	3 55	8 50	2 50	Logging.	40157
June 28	July 27	Ames Township.—North half (berth JHM-2).—District of Thunder Bay.	18	3	A. McKinley, Port Arthur, Ont.	Red and White Pine.... Jack Pine..... Spruce and Balsam..... Poplar..... Birch..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood..... Cedar Posts..... Tamarac and Jack Pine Cord Wood dry.....	6 00 6 00 1 00 1 00 4 00 0 50 0 50 0 25 0 02 0 25	7 50 5 50 5 50 2 00 2 00 3 50 0 35 0 55 0 35 0 03	2 50 2 50 2 00 2 00 2 50 1 40 0 70 0 40 0 02	Logging. Pulpwood. Logging.	34571

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
						Bid	Upset price	Dues			
July 7	July 28	Monmouth Township—Lot 23, con. 8; lots 23-24, con. 9.—District of Haliburton.....	1	1	J. E. Finlay, Tory Hill, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Cedar Posts..... Cedar Poles: 30 ft. and less..... 31 ft. to 40 ft..... 41 ft. to 50 ft..... 51 ft. and over.....	0 60 0 60	1 40 0 70 0 02 0 25 0 50 0 75 1 00	Pulpwood.	11618	
Aug. 7	Aug. 30	Area lying west of G.T.P. Block 8, north of C.N.R. in vicinity of Hunt Station, Berth M-22.—District of Kenora.	8¾	1	Anderson Lumber Co., Fort William, Ont.	Red Pine..... Jack Pine..... Poplar..... Birch..... Spruce Pulpwood..... Fuelwood.....	8 00 7 00 1 00 1 50 0 25	5 50 4 50 2 00 2 50 0 60	2 50 2 50 2 00 2 50 1 40 0 25	Logging. Pulpwood. Logging.	54319
Aug. 16	Sept. 2	Lundy Township.—Lot N. ½ 3, cons. 3 and 4.—District of Temiskaming.	½	3	H. & T. Briscoe, New Liskeard, Ont.	Jack Pine..... Spruce..... Spruce Pulpwood.....	1 25 1 25	4 00 4 50	2 50 2 00 1 40	Logging. Pulpwood.	16080
Aug. 12	Sept. 2	Lundy Township.—Lot N. ½ 3, con. 2.—District of Temiskaming.	¼	1	John Aitcheson, New Liskeard, Ont.	Jack Pine.....	0 50	4 00	2 50	Logging.	16080
Aug. 16	Sept. 2	Ladysmith Township.—South of C.N.R. Berth M-18.—District of Kenora.	18	2	Scott Lumber Co., Port Arthur, Ont.	Red and White Pine..... Jack Pine..... Spruce Pulpwood.....	4 00 5 00 0 55	8 50 6 50 0 10	2 50 2 50 1 40	Logging. Pulpwood.	993 B

Aug. 6	Aug. 30	5	1	Joseph Richard, Timmins, Ont.	Jack Pine.....	0 20	0 20	0 25	Logging.	30801
	Murphy Township.—Lots S. 1½ 7 and 8, con. 1; lot 7, con. 2; lots 5, 6, 7 and N. ½ 8, con. 3; S. 1½ 6, 7, 8, con. 4; lots S. 1½ 7, S. 1½ 8 and S. 1½ 9, con. 5. District of Cochrane.									
Aug. 16	Aug. 10	3	3	Shevlin - Clarke Co., Ltd., Minneapolis, Minn., U.S.A.	Red and White Pine.... Spruce Pulpwood..... Cedar Posts..... 30 ft. and less..... 31 ft. to 40 ft.....	5 05 5 05	4 00 2 00	2 50 2 00 0 02 0 25 0 50	Logging. Pulpwood.	64440
Aug. 25	Sept. 7	1	1	R. Sparks, Cane P.O., Ont.	White Pine..... Jack Pine (damaged).... Green Jack Pine..... Green Spruce.....	0 50 0 50 0 50 0 50	5 00 0 50 4 50 4 50	2 50 2 50 2 50 2 00	Logging.	19762
Sept. 8	Sept. 20	½	1	Judson A. Gunter, Pottersville, Ont.	Pine Logs..... Birch..... Maple..... Ash, Elm and Basswood. Spruce and Balsam..... Hemlock..... Hardwood..... Spruce Pulpwood..... Balsam Pulpwood.....	5 50 3 50 1 50 1 50 2 00 1 50 0 75 0 60 1 30	..... ..... ..... ..... ..... ..... ..... ..... .....	2 50 2 50 2 50 2 00 1 50 0 50 1 40 0 70	Logging.	56381
Aug. 13	Sept. 10	18	5	Shaw & Lahti, Fort William, Ont.	Jack Pine..... Spruce Pulpwood.....	11 00 0 65	4 50 0 60	2 50 1 40	Logging.	59107

Situated N. and W. of G.T.P. Block 4 in the vicinity of Hogarth Township.—District of Thunder Bay.

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
							Bid	Upset price	Dues		
Sept. 8	Sept. 27	Halkirk Township. Lots 7, 8, 9, 10, 11, 12, cons. 4, 5 and 6.—District of Rainy River.	7½	1	J. A. Mathieu, Ltd., Rainy Lake Ont.	Red and White Pine..... Jack Pine..... Jack Pine Laths.....	0 25 0 25 0 05	7 50 4 00 0 10	2 50 2 50 0 40	Logging.	28771
Sept. 9	Sept. 30	Farquier Township.—Lots 16, 17, 18, 19, 20, con. 9; lots W. pts. 15, 16, 17, 18, con. 10.—District of Cochrane.	2	1	H. C. Dunbar, Haileybury, Ont.	Large Spruce and Balsam Poplar..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	..... ..... ..... .....	4 00 2 00 0 50 0 40	2 00 2 00 1 40 0 70 0 40	Logging. Pulpwood.	26805
Sept. 9	Sept. 30	Fraleigh Township.—Lots 15, 16, 17, 18, cons. 5 and 6; lots S. halves 15, 16, 17, 18, con. 7.—District of Thunder Bay.	5	4	Alex. Grant, Port Arthur, Ont.	Large Spruce..... Poplar..... Spruce Pulpwood..... Balsam Pulpwood..... Cedar Posts.....	1 00 1 00 1 03 0 30 0 01	5 50 3 00 0 35 0 70 0 02	2 00 2 00 1 40 0 70 0 02	Logging. Pulpwood.	26210
Sept 14	Sept. 29	Cane Township.—Lots N. ½ 2, N. and S. ½ 3, N. ½ 4, N. and S. ½ 9. On the N.-W. ¼ of N. ½ 2, the N.-E. ¼ of N. ½ 3 and S.-W. ¼ of N. ½ 3 and E. and S. ½ of 3. Pine only offered.—District of Temiskaming.	2	1	F. Alderdice, New Liskeard, Ont.	Red and White Pine..... Green Jack Pine..... Green Spruce..... Dry Jack Pine..... Dry Spruce..... Spruce Pulpwood.....	..... ..... ..... ..... ..... .....	7 50 5 00 5 50 1 00 1 50	2 50 2 50 2 00 2 50 2 00 1 40	Logging. Pulpwood.	18645

Sept 10	Oct.	1	Marvin Township.—South and north-west portions of the township.—District of Thunder Bay.	60	1	Hawk Lake Lumber Co., Ltd., Cochrane, Ont.	Large Spruce..... Large Balsam..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	0 50 0 50 0 50 0 30 0 10	4 00 4 00 0 50 0 30 0 10	2 00 2 00 1 40 0 70 0 40	Logging. Pulpwood.	53229
Sept 10	Oct.	1	Duff and Ottaway Townships except N. ½ lots 3 and 4, cons. 3, 4 and 5 are already under Timber License. Pulpwood and log timber rights only.—District of Cochrane.	70	2	The Beaver Wood & Fibre Co., Ltd., North Bay, Ont.	Spruce Saw Logs..... Balsam Saw Logs..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	4 00 4 00 0 26 0 56 0 10	3 00 3 00 0 60 0 30 0 10	2 00 2 00 1 40 0 70 0 40	Logging. Pulpwood.	8919
Oct. 4	Oct.	20	Gooderham Township.—Lots 1, 2 and 3, cons. 5 and 6.—District of Nipissing.	3	1	Spanish River Pulp and Paper Mills, Ltd., Toronto, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	0 10 0 10	0 40 0 40 0 25	1 40 0 70 0 40	Pulpwood.	9475
Oct. 4	Oct.	20	Mulock Township.—Lots 1, 2, 3, 4, 5, 6, 7, 8, cons. 1 and 2.—District of Nipissing.	8	1	Spanish River Pulp and Paper Mills, Ltd., Toronto, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	0 10 0 10	0 25 0 25 0 15	1 40 0 70 0 40	Pulpwood.	9476
Sept. 8	Sept.	27	West Shore of Rainy Lake north of Grassy Narrows Bay, Berth JA-5.—District of Rainy River.	6	1	J. A. Mathieu, Rainy Lake, Ont.	Jack Pine, per M. ft. B.M. Jack Pine, per cord.....	0 25 0 05	4 00 0 10	2 50 0 40	Logging.	63835
Oct. 5	Oct.	21	Shawanaga Township.—Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, cons. 8, 9 and 10. Burpee Township.—Lots 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, cons. 6, 7, 8, 9, 10.—District of Parry Sound.	18	1	Beagan & Simpson, Boakview, Ont.	Birch..... Hemlock..... Other Hardwood.....	..... ..... .....	5 00 3 00 5 00	2 50 1 50 2 50	Logging.	61001

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
						Bid	Upset price	Dues			
Oct. 4	Oct. 25	McTavish Township.—Lots 3 and 5, Donnelly Survey.—District of Thunder Bay.	1¼	9	Arvo J. Paju, Nipigon, Ont.	Spruce Pulpwood..... Balsam Pulpwood.....	1 30 0 85	1 25 1 40	1 40 0 70	Pulpwood.	19756
Oct. 13	Oct. 30	Eby Township.—Mining claims L.16241, L.16242 which claims form the N.-W. ¼ of lot N. ½ 11, con. 5.—District of Temiskaming.	¼	1	Kaplin Bros., Kirkland Lake, Ont.	Spruce.....Lump Spruce Pulpwood. Lump	sum sum	bonus bonus	75 00 30 00	Logging. Pulpwood.	63671
Oct. 12	Oct. 26	Merrick Township with the exception of Berth 7, which is held under License, Lots 1, 2, 3, 4, 5, 6, 7, 8, cons. 1, 2, 3, 4, 5, 6.—District of Nipissing.	20	1	William Holden Lumber Co., Mulock, Ont.	Red and White Pine..... Hemlock.....	..... .....	5 00 3 00	2 50 1 50	Logging.	37000
Oct. 9	Oct. 30	Stirling Township.—East and west half of lot 4, con. 5, west half lot 10, con. 6.—District of Thunder Bay.	1	2	Fred C. Brown, Port Arthur, Ont.	Large Spruce..... Large Poplar..... Cedar..... Spruce Pulpwood..... Balsam Pulpwood..... Cedar Posts.....	3 50 2 00 2 00 0 45 0 30 0 02	4 50 3 00 4 00 0 25 0 40 0 01	2 00 2 00 2 50 1 40 0 70 0 02	Logging. Pulpwood.	34146
Sep. 21	Oct. 12	Machar Township.—Lots 14 and 15, con. 14.—District of Parry Sound.	½	1	F. J. Stephens, Trout Creek, Ont.	Hemlock..... Birch and Maple..... Spruce Pulpwood..... Balsam Pulpwood..... Fuelwood.....	0 15 0 35 0 10 0 05	3 50 3 50 0 10 0 10 0 50	1 50 2 50 2 40 0 70 0 50	Logging. Pulpwood.	21136

June 9 1925	Sale closed Sept. 10, 1925	Limits on Kapuskasing, Ground Hog and Mattagami Rivers.—District of Cochrane. Agreement consummated Jan. 7th, 1926.	2827	Spruce Falls Co., Ltd. Toronto, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Jack Pine Pulpwood..... Jack Pine per M. ft. B.M.	0 15 0 10 0 10 0 10 3 50	0 50 0 40 3 50	1 40 0 70 0 40 0 40 2 50	Pulpwood.	61301
June 9	Sale closed Sept. 10, 1925	Limit east and south of Lake Nipigon.—District of Thunder Bay. Agreement consummated Jan. 13th, 1926.	1568	Nipigon Corpor- ation, Ltd., Nipi- gon, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Jack Pine Pulpwood..... Jack Pine per M. ft. B.M.	0 10 3 50	0 50 0 40 0 10 0 10 3 50	1 40 0 70 0 40 0 40 2 50	Pulpwood.	61303
June 9	Sale closed Sept. 10, 1925	North and east of Lake Nipi- gon.—District of Thunder Bay. Agreement consummated Jan. 13th, 1926.	1555	Thunder Bay Paper Co., Ltd., Port Arthur, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Jack Pine Pulpwood..... Jack Pine per M. ft. B.M.	0 10 3 50	0 50 0 40 0 10 0 10 3 50	1 40 0 70 0 40 0 40 2 50	Pulpwood.	61302
June 9	Sale closed Sept. 10, 1925	South and west of Lake Nipi- gon.—District of Thunder Bay. Agreement consummated Feb. 27th, 1926.	1240	Provincial Paper Mills, Ltd., To- ronto, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Jack Pine Pulpwood..... Jack Pine per M. ft. B.M. ....	..... ..... ..... ..... ..... 3 50	0 84 1 54 0 10 0 10 3 50	1 40 0 70 0 40 0 40 2 50	Pulpwood.	61304
June 9	Sale closed Sept. 10, 1925	North-west of Lake Nipigon. —District of Thunder Bay. Agreement consummated Sept. 23rd, 1926.	1822	Fort William Paper Co., Ltd., Sault Ste. Marie, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Jack Pine Pulpwood..... Jack Pine per M. ft. B.M.	0 10 3 50	0 50 0 40 0 10 0 10 3 50	1 40 0 70 0 40 0 40 2 50	Pulpwood.	61305

Appendix No. 29—Continued

Timber areas disposed of from November 1st, 1925 to October 31st, 1926

When Granted	(Statutory Cutting Rights)	Area sq. miles	No. of Tend- ers	To Whom Granted	Price Paid				Proposition	File
						Bid	Upset price	Dues		
Permission granted April 6, 1926.	Deloro Township, Mining claims P. 8709, P. 8745, P. 8415, District of Temiskaming.	1		Porcupine Asbes- tos Corporation, Ltd., Timmins, Ont.	Green Spruce, Dry Fuelwood			\$2 00 0 25	Logging	9487A
Permission granted Aug. 21, 1926.	Irving Township, Section 10, Traux Township, Section 12, District of Algoma.	2		Algoma Central Railway, Sault Ste. Marie, Ont.	Jack Pine Ties	0 02		0 10	Ties	175
Permission granted July 8, 1926.	St. Julien Township, Sections 28, 29, 32 and 33, District of Algoma.	5		Algoma Central and Hudson Bay Railway	Jack Pine Ties	0 02		0 10	Ties	1700

Appendix No. 30

AGREEMENT made and entered into this twenty-seventh day of February A. D. 1926.

BETWEEN

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter referred to as "the Minister,"

Of the First Part,

—AND—

PROVINCIAL PAPER MILLS LIMITED, hereinafter referred to as "the Company,"

Of the Second Part.

Whereas the company is now operating a pulp and paper plant at the City of Port Arthur, in the District of Thunder Bay, and paper plants at the Towns of Georgetown, Thorold and Mille Roches, all in the Province of Ontario;

And whereas the company now employs in its plants at Port Arthur and elsewhere in the Province of Ontario, approximately 800 men, and also affords employment for approximately 400 men in the woods' operations carried on to provide the said plants with a supply of wood;

And whereas the Company's present plant at Port Arthur has a capacity of 30 tons of mechanical pulp; 50 tons of bleached pulp and 30 tons of paper;

And whereas the Company has already expended in the erection and equipment of its said plant at the City of Port Arthur upwards of \$3,000,000;

And whereas the Company is desirous of enlarging its plant so that the same will comprise a ground-wood pulp mill with a capacity of 70 tons of mechanical pulp per day, a sulphite pulp mill with a capacity of 50 tons of bleached pulp per day, and a paper mill with a capacity of 90 tons of newsprint per day, said plant to include the necessary machinery and equipment for the manufacture of book paper of a quality equal to that now used in publication of school books in the Province of Ontario;

And whereas the expenditure involved in enlarging the Company's plant to the extent and in the manner above described, and in undertaking and completing other works necessary or advisable for the efficient operation of the said enlarged plants, will exceed the sum of \$1,000,000;

And whereas the plant and works of the Company enlarged as aforesaid, will employ approximately 200 additional men and afford employment for approximately 400 additional men in woods' operations;

And whereas it is estimated that it will require approximately 2,400,000 cords of pulpwood to keep a plant of said capacity operating continuously for a period of 40 years;

And whereas the Company is now entitled to the right to cut pulpwood on the following concessions: The "Nipigon Concession" consisting of 1,240 square miles, upon which there is estimated to be 319,560 cords of pulpwood;

the "Sucker Creek" concession, consisting of 72 square miles, upon which there is estimated to be 41,410 cords of pulpwood, and the "Township of Hele" consisting of 48 square miles, upon which there is estimated to be 80,880 cords of pulpwood;

And whereas the estimated amount of pulpwood on the territory hereinafter described, other than the Concessions mentioned in the preceding paragraph hereof, is 2,462,388 cords;

And whereas by advertisement duly published The Honourable the Minister of Lands and Forests for the Province of Ontario called for tenders to be received by him for the right to cut pulpwood and timber on the areas therein mentioned, including certain lands hereinafter described, subject to certain terms and conditions of sale;

And whereas in pursuance of such advertisement the Company did deliver its tender to the said Minister, in and by which tender it offered to pay for such pulpwood and timber on the territory described in said tender, the prices following: Spruce pulpwood, upset price 50c, dues \$1.40, additional 5c, total \$1.95 per cord; Balsam pulpwood, upset bonus 40c, dues 70c, total \$1.10 per cord; Poplar, upset bonus 10c, dues 40c, total 50c per cord; Jack-pine pulpwood, upset bonus 10c, dues 40c, total 50c per cord; Banksian or Jack-pine, upset bonus \$3.50, dues \$2.50 per M. feet B. M., total \$6.00;

And whereas the prices offered by said Company were the highest prices received for the territory covered by said tender;

And whereas \$2.00 per cord for spruce and \$1.10 per cord for balsam were the highest prices offered pursuant to such advertisement by any tenderer in the District of Thunder Bay;

And whereas the average price per cord for spruce and balsam on the said concessions now owned by the Company and on the territory described in the Company's said tender, computed on the basis of the prices payable under said concessions and at the prices of Two (\$2.00) Dollars per cord for the spruce and One Dollar and ten cents (\$1.10) per cord for the balsam on said territory is approximately Two Dollars and twenty-four cents (\$2.24) per cord for said spruce and balsam timber on the whole of said concessions and territory, which said concessions and territory are hereinafter more particularly mentioned and described;

And whereas it is greatly in the public interest that the said concessions heretofore owned by the said Company should be brought under and made liable to all the provisions, restrictions and conditions in this agreement hereinafter particularly set forth;

And whereas the Company has surrendered to the Crown all its right, title and interest in and to the said concessions in order that the same may be made subject to the provisions of this agreement;

And whereas it will be of great advantage to the Province of Ontario generally, and aid materially in the advancement, development and settlement of the district in which the proposed enlargements to the said Company's plant are to be made, to have the plant of the said Company enlarged and improved as aforesaid;

And whereas with its tender aforesaid, the Company did deposit with the Minister its marked cheque payable to the Honourable the Treasurer of the Province of Ontario for the sum of Fifty thousand (\$50,000) Dollars;

And whereas the concessions now owned by the Company have not a sufficient supply of pulpwood to warrant such enlargements;

And whereas in view of the matters above recited the Minister has deemed it wise and in the public interest to grant to the said Company the right to cut pulpwood as herein provided and has caused this agreement to be prepared so as to secure the erection by the Company of the said enlarged plant and at the same time to assure to the Company a supply of pulpwood sufficient to operate its enlarged plant to its full capacity for a period of twenty-one years from the date hereof or any extension or extensions hereof as are hereinafter provided for;

Now this agreement witnesseth that the Minister with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions hereof, doth hereby grant to the Company for a period of twenty-one years from the date hereof, the right to cut and remove in and upon such parts of the following territory as may from time to time be designated by the Minister, that is to say:

Firstly—The territory included in the Company's said tender, the said Township of Hele, and the said Sucker Creek concession, which may be more particularly described as follows: Commencing at the southeast angle of Grand Trunk Pacific Block 3 as said Block was surveyed and laid down by Ontario Land Surveyor Thomas Fawcett, according to plan dated 1907; thence north along the east limit of said block 6 miles more or less to the northeast angle thereof; thence north in a straight line 6 miles more or less to intersect Ontario Land Surveyors Phillips and Benners first base line run in 1921, where Phillips and Benners meridian line run in 1921 takes its start; thence north along Phillips and Benners meridian line run in 1921, 12 miles to Phillips and Benners second base line of 1921; thence west along the last mentioned base line 12 chains 68 links; thence north along Phillips and Benners meridian line run in 1922, 23 miles 66 chains 63 links; thence east along Phillips and Benners base line run in 1922, 17 miles 79 chains 70 links more or less to the west boundary of the Nipigon Forest Reserve; thence continuing east astronomically 8 miles more or less to the shore of Chief Bay of Lake Nipigon; thence in a general course southeasterly and northeasterly following the shores of Chief Bay, Black Sturgeon Bay, Grand Bay and around Ingall Point in Lake Nipigon to the northerly end of Boggs' Portage; thence southerly across Boggs' Portage to the shore of Lake Nipigon; thence in a general course southwesterly following all the bays on the shore of Lake Nipigon to the intersection with the northerly boundary of the Black Sturgeon River pulp and timber limit; thence west along the north boundary of said pulp and timber limit 21 miles 11 chains 43 links to the northwest angle thereof; thence south along the west boundary of said limit 28 miles to the southwest angle thereof; thence east along the south boundary of said limit 30 miles 51 chains 21 links to the northwest angle of the township of Hele; thence east along the north boundary of the Township of Hele 6 miles to the northeast angle thereof; thence south along the east boundary of the Township of Hele 7 miles 74 chains 22 links to the southeast angle thereof; thence west along the south boundary of the Township of Hele 6 miles to the southwest angle thereof; thence continuing west along the north boundary of the Township of Stirling 2 miles 5 chains 30 links more or less to the northwest angle of the Township of Stirling; thence south along the west boundary of the Township of Stirling 5 miles 77 chains 33 links to the north boundary of the township of Dorion; thence west along the north boundary of the Township of Dorion 7 miles 60 chains more or less to the northwest angle thereof; thence continuing west in a straight line 40 miles more or less to the point of commencement;

Secondly—The Nipigon Pulp Concession, which may be more particularly described as follows: Commencing at the point in which the east limit of the

Township of Nipigon intersects the north shore of Nipigon Bay of Lake Superior; thence north along the east boundary of the said township 5 miles and $36\frac{1}{2}$ chains to the north-east angle of the township; thence east astronomically a distance of 5 miles and 30 chains more or less to a point south astronomically from the southeast angle of the Township of Ledger; thence north astronomically 7 miles more or less to the south-east angle of the said Township of Ledger; thence east astronomically along the south boundary of the Nipigon Forest Reserve 22 miles to the south-east angle thereof; thence north astronomically along the east boundary of the Nipigon Forest Reserve 8 miles; thence east astronomically a distance of 28 miles more or less to a point of intersection with the west boundary of the Pic River Pulp and Timber Boundary produced north; thence south 8 miles more or less to the north-west angle of said Pic River Pulp and Timber Limit and continuing south along the west boundary of said timber limit 23 miles more or less to the north shore of Lake Superior; thence westerly and north-westerly following the shore of Lake Superior to the place of beginning, containing an area of 1,240 square miles more or less, excepting from the above described area the right of way and lands of the Canadian Pacific Railway Company and all lands patented, leased or sold therein—sufficient pulpwood to enable the Company to operate its enlarged plant continuously to its full capacity; and if at any time during said period of twenty-one years or any extensions thereof as are hereinafter provided for, it should appear that for any reasons whatever there is not sufficient pulpwood timber on the said territory to supply the Company with sufficient pulpwood to enable it to operate its enlarged plant continuously to its full capacity the Minister will grant to the Company the right to cut pulpwood timber on other ungranted Crown lands to be designated by him, and to be situate as near as possible to the City of Port Arthur, on the same terms and conditions as are herein contained;

The whole of the area above described is hereinafter referred to as "the territory,"

1. The said Company shall increase the capacity of its said plant at the City of Port Arthur until same shall consist of a ground-wood pulp mill with a capacity of 70 tons of mechanical pulp per day, a sulphite pulp mill with a capacity of 50 tons of bleached pulp per day, and a paper mill with a capacity of 90 tons of newsprint per day, and shall instal in such plant all necessary machinery and equipment for the manufacture of book paper of a quality equal to that now used in the publication of school books in the Province of Ontario.

2. The construction of the additions and enlargements necessary to increase the capacity of said plant to the extent mentioned in this paragraph shall be commenced forthwith, and shall be completed on or before the 31st day of December 1927. At least \$50,000 shall be expended before the 1st day of July 1926; an additional sum of \$200,000 before the first day of July 1927, and the total amount necessary to complete the said enlarged plant on or before the 31st day of December 1927.

3. The Company shall also construct at the said City of Port Arthur a soda pulp mill for the production of soda pulp for use in the making of book paper, or some other plant equally efficient for the purpose of making book paper, when and so soon as market conditions in the Province of Ontario will justify such expenditure, of which fact the Minister shall be the sole judge.

4. The soda pulp mill or other book paper plant referred to in the preceding paragraph hereof, shall have a capacity of 50 tons, shall require an expenditure of at least \$1,000,000, and shall when constructed employ in the operation thereof at least 150 men.

5. The plans for the additions and enlargements to the Company's said plant and said soda pulp mill or other book paper plant hereinbefore mentioned, shall be submitted to and approved of by the Minister, and such additions and enlargements shall be completed within the time above mentioned to the satisfaction of the Minister.

6. The said Company shall expend in additions, enlargements and betterments to its said existing plant at the City of Port Arthur and in works necessary and advisable for the efficient operation of said plant at said City of Port Arthur the sum of \$1,000,000, exclusive of the cost of said soda pulp mill or other book paper plant, or such other sum as shall be sufficient to construct and complete in all respects a modern well-equipped pulp and paper plant of the dimensions, capacity and character hereinbefore provided for, and shall furnish proof to the satisfaction of the Minister of such expenditure.

7. The Company shall from and after the 31st day of December 1927, constantly employ at least 1,000 men in the operation of its pulp and paper plant in the Province of Ontario (at least 450 of whom shall be employed in such enlarged plant at Port Arthur) and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of 800 men;

Provided that if the Company through accident, interruption to power or other cause not attributable to any default on its part, shall at any time or times be unable to give continuous employment to the number of men provided for in this paragraph, the Minister may by order in writing under his hand, relieve the Company from time to time from its liability so to do. No such order shall in any way invalidate this paragraph or relieve the Company from liability thereunder, other than and to the extent specifically set forth in such written order.

8. The deposit of Fifty thousand Dollars (\$50,000) made by the Company with its tender, shall remain on deposit until the enlarged plant herein provided for, has been completed and put in operation. After said plant has been completed and is in regular operation, the said Fifty thousand (\$50,000) dollars may be applied on account of moneys payable by the Company hereunder. The Company shall also furnish a bond of an approved Guarantee Company satisfactory to the Minister in the sum of Two hundred thousand (\$200,000) dollars, to secure the performance of its obligations hereunder.

9. The woods and timber covered by this agreement are spruce, balsam, banksian or jack-pine, poplar and whitewood trees.

10. The right to sell banksian or jack-pine other than for pulpwood and to authorize the purchaser to cut and remove the same, is hereby specifically reserved to the Crown, but it is distinctly understood and agreed that the Company shall cut and remove from the territory from time to time designated by the Minister as hereinafter provided, banksian or jack-pine logs and all other merchantable timber of every character and kind whatsoever upon said area, so that the same may be cut clean and according to approved lumbering methods, in such manner as the Minister may from time to time direct and to his satisfaction.

11. All banksian or jack-pine cut into logs under the provision of paragraph 10 hereof shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

12. The Company shall not hew any timber into ties without having first obtained the consent in writing of the Minister, and if such consent be given, the price to be paid by the Company for ties so hewn shall be fixed by the Minister in and by the writing containing such consent.

13. Whenever in the opinion of the Minister there is spruce, balsam or poplar too large for pulpwood on the areas in which the Company is operating, the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing.

14. All spruce, balsam or poplar cut into logs, under the provision of the provisions of the preceding paragraph hereof shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

15. All pulpwood cut by the Company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council and requiring the expenditure of no less labour and money in the manufacture thereof than is required in the manufacture of newsprint at the Company's said plant at Port Arthur or at its other plants in the Province of Ontario.

16. When and so soon as the Company has erected the soda pulp mill hereinbefore provided for, the Company shall utilize the product of such mill or such part thereof as the Minister may from time to time designate, in the manufacture of book paper of a quality equal to that now used in the publication of school books in the Province of Ontario.

17. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

(a) All red and white pine on said territory is reserved to the Crown.

(b) The Crown reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian Reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests entitles the applicant or applicants to a lease or patent of such land, together with right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.

(c) All water powers and privileges on the said territory are reserved to the Crown.

(d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.

(e) In no event shall cutting be performed within one-half mile in perpendicular width along the shores of Lake Nipigon, without the consent in writing of the Minister.

18. On or before the first of September in each year, the Company shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut any other place or places in said territory other than and except those specially designated in such permission. At the end of the season's operations, and on or before the first day of June in each

and every year, the Company shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

19. The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of pulpwood and timber on such area that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Company to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such pulpwood and timber he may deem proper.

20. The Company shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile, or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The Minister shall fix the area upon which fire protection charge is payable.

21. Pulpwood taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

22. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Company hereby is the right to cut and remove wood and timber hereinbefore described sufficient to enable the Company to operate its enlarged plant continuously to its full capacity during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for on such areas within said territory or within any other territory as from time to time may be designated by the Minister pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Lieutenant-Governor-in-Council, or by the Minister.

23. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October, in each year, and the Government in addition to all the rights and powers herein contained shall have all the rights and powers in respect of enforcing such payments as are now provided in the case of timber cut under The Crown Timber Act, On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up to the 31st of October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

24. The Minister shall have the right to inspect the timber operations carried on by the Company at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber, which should be removed, is being left or destroyed, he shall have the right to estimate the said timber and charge the same to the Company at the same rate of dues and bonuses as if it had been actually removed. The cutting and removing

of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister.

25. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

26. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace, shall be disposed of by and at the expense of the company in accordance with the Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

27. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

28. All bona fide accounts due for settlers' pulpwood purchased by the company shall constitute a first claim against the company.

29. The company shall pay to the Party of the First Part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timber:

For spruce and balsam pulpwood \$2.24 per cord; for poplar and jack-pine pulpwood 50c per cord, and for jack-pine other than for pulpwood purposes \$6.00 per M. feet. B.M.

30. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on its part herein contained.

31. Failure to enlarge said plant or to make the expenditure hereinbefore provided for or to employ the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on its part herein contained, shall forfeit all the right of the Company hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the property of the Crown.

32. If upon the termination of said period of twenty-one years, the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such renewals the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant, the Minister shall grant to the Company a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber,) as may then be fixed by him.

33. The manufacturing clauses of The Crown Timber Act and amendments to the said The Crown Timber Act, and all other clauses, acts and regulations relating in any way to the cutting of timber on Crown lands, shall be applicable to the operation of the Company, and shall be binding upon the Company as fully and effectually as if they had been set forth herein. Provided always, that

nothing contained in such clauses, acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the company by virtue of this agreement.

34. That as required by the Minister upon reasonable notice the company will at the market price from time to time, furnish to Canadian publishers each month, such a proportion of the output of the paper mill as shall be demanded by the Minister; provided however, that the Company shall not be required to so furnish more than fifteen per cent. from time to time of its total output.

35. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the company.

36. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED

in the presence of

(Sgd.) W. C. CAIN as to
signature of Minister.

(Sgd. S. F. DUNCAN,

SEAL

(Sgd.) G. H. FERGUSON,
Minister of Lands and Forests.

PROVINCIAL PAPER MILLS,
LIMITED.

SEAL

(Sgd. I. H. WELDON,

President.

(Sgd.) W. S. BARBER,

Secretary.

Appendix No. 31

AGREEMENT made and entered into this fifth day of January, A.D., 1926.

BETWEEN

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter referred to as "the Minister,"

of the First Part,

AND

SPRUCE FALLS COMPANY, LTD., hereinafter referred to as "the Company,"

of the Second Part.

Whereas the Company is now operating at the Town of Kapuskasing in the Township of O'Brien in the District of Temiskaming, a plant for the manufacture of pulp, having a capacity of 115 tons of sulphite pulp per day.

And whereas the Company now employs in its said plant at Kapuskasing, approximately 225 men and also affords employment for approximately 1,000 men in the woods operations carried on to provide the said plant with a supply of wood.

And whereas the Company has expended in the erection and equipment of its said plant and in the development of water power and otherwise upwards of Five Million, Five hundred Thousand dollars (\$5,500,000.00).

And whereas the Company is desirous of enlarging its plant so that the same will ultimately comprise a ground woodpulp mill with a capacity of 325 tons of mechanical pulp per day, sulphite pulp mill with a capacity of 115 tons of sulphite pulp per day, and a paper mill of a capacity of 550 tons per day.

And whereas the expenditure involved in enlarging the Company's plant to the extent and in the manner above described, and in developing water powers, building tramways, and in undertaking and completing other works necessary or advisable for the efficient operation of the said enlarged plant, will exceed the sum of Twelve Million dollars (\$12,000,000).

And whereas the plant and works of the Company enlarged as aforesaid will employ approximately 700 men, and will afford employment for approximately 3,500 men in woods operations.

And whereas by advertisement duly published the Honourable the Minister of Lands and Forests for the Province of Ontario called for tenders to be received by him for the right to cut pulpwood on the areas therein mentioned, including the lands hereinafter described, subject to certain terms and conditions of sale.

And whereas in pursuance of such advertisement the Company did deliver its tender to the said Minister in and by which tender it offered to pay for such pulpwood the prices hereinafter set forth.

And whereas with its tender aforesaid the Company did deposit with the Minister its marked cheque payable to the Honourable the Treasurer of the Province of Ontario for the sum of Fifty Thousand dollars (\$50,000).

And whereas it will be of great advantage to the Province of Ontario and aid materially in the advancement, development and settlement of the district in which the Company's plant is located to have the plant of the Company enlarged in manner aforesaid.

And whereas the Company is willing to undertake and agree to conduct and build a logging railway for the purpose of transporting its logs from a point at or near Smoky Falls in the Township of Harmon, to a point at or near the said Town of Kapuskasing, in such manner as the Minister may require and develop the power of Smoky Falls and build a transmission line or lines from Smoky Falls to its plant at Kapuskasing.

And whereas the Company is willing, whenever required by the Minister so to do, to erect a saw mill at or near the station of Fauquier on the Canadian National Railway for the purpose of manufacturing lumber from wood other than pulpwood.

And whereas in view of the matters above recited, the Minister has deemed it wise and in the public interest to grant to the said Company, the right to cut pulpwood as herein provided and has caused this agreement to be prepared so as to secure the erection by the Company of the said enlarged plant and at the same time to assure to the Company a supply of pulpwood sufficient to operate its enlarged plant to its full capacity for a period of twenty-one years, from the date hereof or any extension or extensions hereon as are hereinafter provided for.

Now this agreement witnesseth that the Minister, with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions

hereof, doth hereby grant to the Company for a period of twenty-one years from the date hereof, the right to cut and remove in and upon such parts of the following territory as may from time to time, be designated by the Minister, that is to say: the Townships of Clouston, Buchan, Wadsworth, Lisgar, Seaton, Fenton, Staples, Casselman, Slack, Griffin, Watson, Poulett, Hicks, Stringer, MacVicar, Carmichael, Ford, Oak, Aitken, Fortune, Guilfoyle, Boyle, Bradley, Harmon, Mowbray, Hopkins, Cockshutt, Howells, Clay, Tucker, Beardmore, Hurdman, Agate, Marceau, Sheldon, Traill and the west one-half of Adanac, all in the District of Cochrane, in the Province of Ontario, sufficient pulpwood timber to enable the company to operate its enlarged plant continuously to its full capacity, and if at any time during said period of twenty-one years or any extension or extensions thereof as are hereinafter provided for, it should appear that for any reason whatever, there is not sufficient pulpwood timber on the said territory to supply the Company with sufficient pulpwood to enable it to operate its enlarged plant continuously to its full capacity, the Minister will grant to the Company the right to cut pulpwood timber on other ungranted Crown Lands to be designated by him and to be situate as near as possible to the Town of Kapuskasing, on the same terms and conditions as are herein contained.

1. The said Company shall increase the capacity of its said plant until the same shall consist of a ground-woodpulp mill, having a daily capacity of 325 tons of mechanical pulp; a sulphite pulp mill with a daily capacity of 115 tons of sulphite pulp; a paper mill with a daily capacity of 400 tons of newsprint. The construction of the additions and enlargements necessary to increase the capacity of said plant to the extent mentioned in this paragraph, shall be commenced forthwith; Five Hundred Thousand dollars (\$500,000) will be expended before the first day of July, 1926, Three Million dollars (\$3,000,000) additional before the first day of July, 1927, and the entire construction will be completed before the first day of July, 1928, and the Company will before said date develop the power at Smoky Falls and build a transmission line or lines from Smoky Falls to its said plant at Kapuskasing; and thereafter and within five years from date hereof, the Company will increase the capacity of its paper mill until the ultimate capacity thereof shall be 550 tons of newsprint per day.

2. The plans for the additions and enlargements to said plant mentioned in the preceding paragraph hereof, shall be submitted to and approved by the Minister, and such additions and enlargements shall be completed within the time above mentioned, to the satisfaction of the Minister.

3. The said Company shall expend in additions, enlargements and betterments to said existing plant and in developing water powers, building tramways and other works necessary or advisable for the efficient operation of the said plant, at least the sum of Twelve Million dollars (\$12,000,000) and shall furnish proof to the satisfaction of the said Minister of such expenditures.

4. The Company shall from and after the expiration of three years from the date hereof, constantly employ at least 700 men within or adjacent to the Town of Kapuskasing, in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in woods operations for not less than six months in each year for an average of 3,500 men, during the whole of said period of twenty-one years.

5. The deposit of \$50,000, made by the Company with its tender, shall remain on deposit until the enlarged plant hereinbefore provided for, has been completed, and put in operation. After said plant has been completed and is in regular operation, the said \$50,000 may be applied on account of moneys

payable by the Company hereunder. The Company shall also furnish a bond satisfactory to the Minister in the sum of Two hundred thousand dollars to secure the performance of its obligations hereunder.

6. The woods and timber covered by this agreement are spruce, balsam, banksian or jackpine, poplar and whitewood trees.

7. The right to sell banksian or jackpine and to authorize the purchaser to cut and remove the same, is hereby reserved to the Crown, but the Minister may from time to time if he deems wise, permit the Company to cut and remove banksian or jackpine logs and the Minister may at any time require the Company to cut banksian or jackpine on areas covered by its operations.

8. All banksian or jackpine cut into logs under the provisions of paragraph 7 hereof shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

9. The Company shall not hew any timber into ties without having first obtained the consent in writing of the Minister, and if such consent be given, the price to be paid by the Company for ties so hewn shall be fixed by the Minister in and by the writing containing such consent.

10. Whenever in the opinion of the Minister there is spruce, balsam or poplar too large for pulpwood on the areas in which the company is operating, the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing.

11. All spruce, balsam, or poplar cut into logs, under the provisions of the preceding paragraph hereof shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

12. All pulpwood cut by the Company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council, and requiring the expenditure of no less labour and money in the manufacture thereof, than is required in the manufacture of newsprint at the Company's said plant at Kapuskasing.

13. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes as the Minister may deem fit, and in particular, but not so as in any way to limit the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:—

(a) All red and white pine on said territory is reserved to the Crown.

(b) The Crown reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located, or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests, entitles the applicant or applicants to a lease or patent of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands, within the area already located for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.

(c) All water powers and privileges on the said territory are reserved to the Crown.

(d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.

14. On or before the first of September in each year, the Company shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut at any place or places in said territory other than and except those specially designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Company shall file with the Minister, a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

15. The Minister shall in and by the written permission provided for in the preceding paragraph hereof, designate the kind or kinds of timber to be cut on the area covered by such permission, and the Company shall cut all merchantable wood and timber so designated on such area in such manner as the Minister may from time to time direct.

16. The Company shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile, or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The Minister shall fix the area upon which fire protection charge is payable.

17. Pulpwood taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

18. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Company hereby is the right to cut wood and timber hereinbefore described sufficient to enable the Company to operate its enlarged plant continuously to its full capacity during said term of twenty-one years and any extension or extensions thereof as are hereinbefore provided for on such areas within said territory or within any other territory as from time to time may be designated by the Minister pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Lieutenant-Governor-in-Council, or by the Minister.

19. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government shall have all the rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under The Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up to the 31st October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

20. The Minister shall have the right to inspect the timber operations on the allotted territory at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber, which should be removed, is being left or destroyed he shall have the right to estimate the said timber and charge the same to the Company at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have

been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister of Lands and Forests.

21. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

22. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Company in accordance with the Forest Fires Prevention Act and amendments thereto, and Regulations made thereunder.

23. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

24. All bona fide accounts due for settlers' pulpwood purchased by the Company shall constitute a first claim against the Company.

25. The Company shall pay to the party of the first part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timber.

Spruce pulpwood—per cord, an upset price of 50c in addition to Crown Dues of \$1.40 with an additional 15c added, making a total of \$2.05 per cord.

Balsam pulpwood—per cord, an upset price of 40c in addition to Crown Dues of 70c with an additional 10c added, making a total of \$1.20 per cord.

Poplar pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c making a total of 50c per cord.

Jackpine pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c, making a total of 50c per cord.

Jackpine—(per M. ft. B.M.), an upset price of \$3.50 per M. feet B.M. in addition to Crown Dues of \$2.50 per M. feet B.M., making a total of \$6.00 per M. feet B.M.

26. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on its part herein contained.

27. Failure to enlarge said plant or to make the expenditure hereinbefore provided for or to employ the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on its part herein contained, shall forfeit all the right of the Company hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

28. Whenever required by the Minister so to do the Company will construct and build a logging railway for the purpose of transporting its logs from a point at or near Smoky Falls in the Township of Harmon to a point at or near the said Town of Kapuskasing in such manner as the Minister may require on receiving from the Minister a License of Occupation for the lands required for the right of way of such logging railway. Such License of Occupation shall be in such form and subject to such terms and conditions in all respects as the Minister may determine. Among other things it shall provide for the right of the Company to erect and maintain a power transmission line on such right of way for the purpose of transmitting power to be developed by the Company at Smoky Falls, and if the Minister sees fit it may provide for the expropriation or taking over by the Minister or the Temiskaming and Northern Ontario Railway Commission at any time of such logging railway, paying the Company by way of compensation therefor such sum or sums as the Minister may deem

proper upon the same being appropriated for the purpose by the Legislative Assembly of the Province of Ontario.

29. If upon the termination of said period of twenty-one years, the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years, upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister and at the expiration of such period of ten years to a further extension of ten years, upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such renewals the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operation of the said plant, the Minister shall grant to the Company a further renewal or renewals of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

30. The manufacturing clauses of the Crown Timber Act and amendments thereto, and all other clauses, Acts and regulations relating to the cutting of timber on Crown Lands, shall be applicable to the operations of the Company, and shall be binding upon the Company as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, Acts and regulations shall limit, restrict, or curtail the duties, liabilities and obligations imposed upon the Company by virtue of this agreement.

31. The Company shall route all its freight both incoming and outgoing, over the lines of the Temiskaming and Northern Ontario Railway Commission whenever as favorable rates can be obtained by routing such freight, by or over that line as by any other route.

32. That as required by the Minister upon reasonable notice the Company will at the market price from time to time furnish to Canadian Publishers each month such a proportion of the output of the paper mill as shall be demanded by the Minister: provided however that the Company shall not be required to so furnish more than fifteen per cent. from time to time of its total output.

33. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Company.

34. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
in the presence of

(Sgd.) M. E. HARE, as to the signature of
the Minister

(Sgd. STRACHAN JOHNSTON,
as to the SPRUCE FALLS COMPANY,
LIMITED.

(Sgd.) JAS. LYONS,
Minister.

SPRUCE FALLS COMPANY,
LIMITED.

(Sgd. F. J. SENSENBRENNER,
President.

(Sgd.) J. H. BLACK,
Assistant Secretary.

Appendix No. 32

AGREEMENT made and entered into this twenty-first day of September, A.D., 1926.

BETWEEN:

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter referred to as "the Minister."

of the First Part,

AND

FORT WILLIAM PAPER COMPANY, LIMITED, herein-after referred to as "The Company,"

of the Second Part,

Whereas the said Company is now operating a pulp and paper plant at the City of Fort William, in the District of Thunder Bay, consisting of a ground-wood pulp mill having a capacity of 160 tons of ground-wood pulp per day, and a paper mill having a capacity of 175 tons of newsprint per day;

And whereas the said Company has expended in the erection and equipment of said plant, and in a site for the same, upwards of Four Million dollars, and has since its incorporation expended for labour, raw material and supplies in connection with such plant, a further sum of over Four Million dollars;

And whereas the said Company employs in its said plant at Fort William 225 men, and in its woods' operations during the time in each year such operations are carried on, over 1,200 men;

And whereas the annual consumption of wood by said plant is approximately 70,000 cords;

And whereas the said Company's supply of wood, available for said plant, on lands upon which it now has the right to cut is only sufficient to keep said plant operating to capacity for a comparatively short period and is not sufficient to place the business of the Company on a permanent basis or to justify any enlargements or extensions thereof.

And whereas the Company is desirous of enlarging its plant, so that the same will comprise a ground-wood pulp mill with a capacity of 350 tons of mechanical pulp per day; a sulphite pulp mill with a capacity of 100 tons of unbleached sulphite pulp per day, and a paper mill of a capacity of 425 tons of newsprint per day;

And whereas the proposed enlarged plant described in the preceding paragraph hereof will consume in its operations approximately 175,000 cords of pulpwood annually;

And whereas upon the completion of the works hereinbefore mentioned the said Company will have a capital investment in said plant of over Ten Million dollars (\$10,000,000);

And whereas the plant and works of the Company enlarged as aforesaid will employ approximately 580 men and will afford employment for approximately 3,000 additional men in woods' operations;

And whereas by advertisement duly published, The Honourable the Minister of Lands and Forests for the Province of Ontario called for tenders to be

received by him for the right to cut pulpwood and timber on the areas therein mentioned, including the lands hereinafter referred to, subject to certain terms and conditions of sale;

And whereas in pursuance of such advertisement the Company did deliver its tender to the said Minister, in and by which tender it offered to pay for such pulpwood and timber on the territory described in said tender, the prices hereinafter mentioned, which said prices were the highest received for the territory covered by said tender, and also the highest offered pursuant to such advertisement by any tenderer for pulpwood and timber in the District of Thunder Bay;

And whereas with its tender aforesaid, the Company did deposit with the Minister its marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for the sum of Fifty Thousand dollars (\$50,000);

And whereas it will be of great advantage to the Province of Ontario generally, and aid materially in the advancement, development and settlement of the City of Fort William and the territory adjacent thereto, to have said plant enlarged and the business of the Company placed on a permanent basis;

And whereas in view of the matters above recited, the Minister has deemed it wise and in the public interest to grant to the said Company the right to cut pulpwood as herein provided and has caused this agreement to be prepared so as to secure the erection by the Company of the said enlarged plant and at the same time to assure to the Company a supply of pulpwood sufficient to operate its enlarged plant to its full capacity for a period of twenty-one years from the date hereof or any extension or extensions hereof as are hereinafter provided for;

Now this agreement witnesseth that the Minister with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions hereof, doth hereby grant to the Company for a period of twenty-one years, from the date hereof, the right to cut and remove in and upon such parts of the following territory, situate, lying westerly of Lake Nipigon, in the District of Thunder Bay and Province of Ontario, as may from time to time be designated by the Minister, that is to say;

Parcel One:

Commencing at a point in the west limit of the Nipigon Forest Reserve where it is intersected by the northerly base line run by Ontario Land Surveyors Phillips & Benner in 1922, said point being north 6 miles, 53 chains, 35 links from the northwest angle of Black Sturgeon River Pulp and Timber Limit; thence west along said base line 17 miles, 79 chains, 70 links to the meridian line, run by said Ontario Land Surveyors in 1922; thence south along said meridian line 12 miles, to the southerly base line run by Ontario Land Surveyors Phillips and Benner in 1922; thence west along the last mentioned base line 20 miles more or less to the 4 mile post planted by said Ontario Land Surveyors on said base line and being at the distance of 4 miles east from the meridian line run by Ontario Land Surveyor K. G. Ross in 1921; thence north astronomically from said 4 mile post 44 miles; thence east astronomically 26 miles; thence south astronomically 20 miles more or less to Ontario Land Surveyor Ross base line in 1922; thence east along said last mentioned base line 12 miles more or less to the westerly limit of the Nipigon Forest Reserve; thence north along said limit 4 miles more or less to a point west astronomically from the southwest angle of the Gull River Indian Reserve; thence east astronomically to the southwest angle of said Indian Reserve and continuing east astronomically along the south boundary of the same 6 miles, 40 chains, more or less to the shores of

Kaiashk Bay of Lake Nipigon; thence in a general course easterly, southerly and westerly but following in all directions, the shores of Lake Nipigon and the bays thereof to a point in Chief Bay east astronomically from the point of commencement; thence west astronomically 8 miles more or less to the point of commencement.

Parcel Two:

Commencing at a point 10 miles, 40 chains east astronomically from the west limit of the Nipigon Forest Reserve and in the production easterly of the northerly limit of said first described parcel; thence south astronomically 15 miles more or less to the shores of Kaiashk Bay of Lake Nipigon; thence in a general direction southerly, easterly, and northerly but following in all directions the shores of Lake Nipigon and the bays thereof to a point east astronomically from the point of commencement; thence west astronomically 4 miles more or less to the point of commencement.

Parcel Three:

Commencing at the northeast angle of lands described in parcel 1, being a point 30 miles east of O.L.S., K. G. Ross' meridian line of 1921; thence from said point of commencement south astronomically 20 miles more or less to Ontario Land Surveyor Ross' base line run in 1922; thence east along said last mentioned base line 12 miles more or less to the westerly limit of the Nipigon Forest Reserve; thence north along said limit 4 miles more or less to a point west astronomically from the southwest angle of the Gull River Indian Reserve; thence east astronomically to the southwest angle of said Indian Reserve; thence north astronomically along the westerly limit of said Indian Reserve to the northwest angle thereof; thence east astronomically along the north limit of said Indian Reserve to the shore of Kaiashk Bay of Lake Nipigon; thence in a general course northeasterly, easterly, southerly and easterly following the shore line of said Kaiashk Bay to a point east astronomically 10 miles, 40 chains measured at right angles from the westerly limit of the Nipigon Forest Reserve; thence north astronomically along the westerly limit of the lands described in parcel 2, 15 miles more or less to a point east astronomically from the point of commencement; thence west astronomically 22 miles, 40 chains more or less to the point of commencement.

1. The said Company shall increase the capacity of its said plant until the same shall consist of a ground-wood pulp mill with 20 magazine grinders having a daily capacity of 350 tons of mechanical pulp; a sulphite pulp mill with 3 digesters having a daily capacity of 100 tons of unbleached sulphite; a paper mill with two 198 inch paper machines, and two 234 inch paper machines, having a daily capacity of 425 tons of newsprint. The construction of the additions and enlargements necessary to increase the capacity of said plant to the extent mentioned in this paragraph, shall be commenced forthwith and be completed on or before the thirty-first day of December 1928.

2. Expenditure shall be made by the Company in the construction of such extensions and additions as follows: One Million dollars (\$1,000,000) on or before the thirty-first day of December 1926; Four Hundred Thousand dollars (\$400,000) on or before the thirty-first day of December 1927, and the full amount required to construct and complete in all respects extensions and enlargements to the said plant to the full extent mentioned herein not later than the thirty-first day of December 1928.

3. The plans for the additions and enlargements to the Company's said plant hereinbefore mentioned shall be submitted to and approved of by the

Minister, and such additions and enlargements shall be completed within the time above mentioned to the satisfaction of the Minister.

4. The said Company shall expend in additions, enlargements and betterments to its said existing plant and in works necessary and advisable for the efficient operation thereof, the sum of Four Million dollars (\$4,000,000) or such other sum as shall be sufficient to construct, complete and equip in all respects a modern and well-equipped pulp mill and paper plant of the character, size and capacity hereinbefore provided for, and shall furnish proof to the satisfaction of the Minister of such expenditure.

5. The Company shall from and after the thirty-first day of December 1928, constantly employ at least 580 men in or about the operation of said enlarged plant and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of three thousand (3,000) men.

Provided that if the Company through accident, interruption to power or other cause not attributable to any default on its part, shall at any time or times be unable to give continuous employment to the number of men provided for in this paragraph, the Minister may by order in writing under his hand, relieve the Company from time to time from its liability so to do. No such order shall in any way invalidate this paragraph or relieve the Company from liability thereunder, other than and to the extent specifically set forth in such written order.

6. The deposit of Fifty Thousand dollars (\$50,000) made by the Company with its tender, shall remain on deposit until the enlarged plant hereinbefore provided for, has been completed and put in operation. After said plant has been completed and is in regular operation, the said Fifty Thousand (\$50,000) dollars may be applied on account of moneys payable by the Company hereunder. The Company shall also furnish a bond of an approved Guarantee Company satisfactory to the Minister in the sum of Two Hundred Thousand dollars (\$200,000) to secure the performance of its obligations hereunder.

7. The woods and timber covered by this agreement on Parcels one (1) and two (2) are spruce, balsam, banksian or jackpine, poplar and whitewood trees and on Parcel three (3) spruce and balsam only.

8. The right to sell banksian or jackpine other than for pulpwood and to authorize the purchaser to cut and remove the same, is hereby specifically reserved to the Crown, but it is distinctly understood and agreed that the Company shall cut and remove from the territory from time to time designated by the Minister as hereinafter provided, banksian or jackpine logs and all other merchantable timber of every character and kind whatsoever, upon parcels one (1) and two (2), so that the same may be cut clean and according to approved lumbering methods, in such manner as the Minister may from time to time direct and to his satisfaction.

9. All banksian or jackpine cut into logs under the provisions of paragraph 6 hereof shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

10. The Company shall not hew any timber into ties without having first obtained the consent in writing of the Minister, and if such consent be given, the price to be paid by the Company for ties so hewn shall be fixed by the Minister in and by the writing containing such consent.

11. Whenever in the opinion of the Minister there is spruce, balsam or poplar too large for pulpwood on the areas in which the Company is operating, the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing.

12. All spruce, balsam or poplar cut into logs, under the provisions of the preceding paragraph hereof, shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

13. All pulpwood cut by the company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council and requiring the expenditure of no less labour and money in the manufacture thereof than is required in the manufacture of newsprint at the Company's said plant at Fort William or adjacent thereto.

14. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

- (a) All red and white pine on said territory is reserved to the Crown.
- (b) The Crown reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests, entitles the applicant or applicants to a lease or patent of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.
- (c) All water powers and privileges on the said territory are reserved to the Crown.
- (d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.
- (e) In no event shall cutting be performed within one-half mile in perpendicular width along the shores of Lake Nipigon, without the consent in writing of the Minister of Lands and Forests.

15. It is further distinctly understood and declared that jackpine and all wood and timber of every character and kind whatsoever, other than spruce and balsam on Parcel three (3) is reserved to the Crown, together with the right to sell or otherwise deal with the same in such manner as may be thought proper. Nothing in this paragraph contained shall by implication or otherwise limit, restrict, or curtail the rights and powers reserved to or conferred upon the Minister by this agreement with respect to jackpine and other timber on Parcels 1 or 2.

16. On or before the first of September in each year, the Company shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut at any other place or places in said territory other than and except these specifically designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Company shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

17. The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of pulpwood and timber on such area, that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Company to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such pulpwood and timber he may deem proper.

18. The Company shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The Minister shall fix the area upon which fire protection charge is payable.

19. Pulpwood taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

20. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and the only right conferred upon the Company hereby is the right to cut sufficient wood and timber of the character hereinbefore described to enable the Company to operate its enlarged plant continuously to its full capacity during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for on such areas within said territory or within any other territory as from time to time may be designated by the Minister pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Lieutenant-Governor-in-Council, or by the Minister.

21. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government in addition to all the rights and powers herein contained shall have all the rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under The Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up to the 31st of October of the same year, or for one month, and thereafter at the rate of one per cent. per month until paid.

22. The Minister shall have the right to inspect the timber operations carried on by the Company at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber which should be removed, is being left or destroyed, he shall have the right to estimate the said timber and charge the same to the Company at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister.

23. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

24. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Company in accordance with the Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

25. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

26. All bona fide accounts due for settlers' pulpwood purchased by the Company, subject to the rights of the Crown, shall constitute a first claim against the Company.

27. The Company shall pay to the party of the first part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timber;

Spruce pulpwood—per cord, an upset price of 50c in addition to Crown Dues of \$1.40, with an additional 10c added, making a total of \$2.00 per cord.

Balsam pulpwood—per cord, an upset price of 40c in addition to Crown Dues of 70c, making a total of \$1.10 per cord.

Poplar pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c, making a total of 50c per cord.

Jackpine pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c, making a total of 50c per cord.

Jackpine—(per M. feet B.M.), an upset price of \$3.50 per M.F.B.M. in addition to Crown Dues of \$2.50 per M.F.B.M., making a total of \$6 per M.F.B.M.

28. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants agreements, provisions and conditions on its part herein contained.

29. Failure to enlarge said plant or to make the expenditure hereinbefore provided for or to employ the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on its part herein contained, shall forfeit all the right of the company hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

30. If upon the termination of said period of twenty-one years the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such extensions the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant the Minister

shall grant to the Company a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

31. The manufacturing clauses of The Crown Timber Act and amendments to the said The Crown Timber Act, and all other clauses, Acts and regulations relating in any way to the cutting of the timber on Crown Lands, shall be applicable to the operations of the company, and shall be binding upon the company as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Company by virtue of this agreement.

32. As required by the Minister upon reasonable notice the Company will at the market price from time to time furnish to Canadian Publishers each month such a proposition of the output of the paper mill as shall be demanded by the Minister; provided however, that the Company shall not be required to so furnish more than fifteen per cent. from time to time of its total output.

33. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Company.

34. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED

GEO. GRANT,
as to G. H. FERGUSON,

M. LYNCH,
as to signature of FORT WILLIAM
PAPER CO., LTD.

G. H. FERGUSON,
FORT WILLIAM PAPER CO., LTD.,

per: G. R. GRAY,
Vice Pres.
J. G. GIBSON, Secty.

Appendix No. 33

AGREEMENT made and entered into this thirtieth day of January, A.D. 1926.

BETWEEN:

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter referred to as "The Minister."

of the First Part,

AND

THUNDER BAY PAPER COMPANY, LIMITED, herein-after referred to as "The Company."

of the Second Part.

Whereas the company is now operating at the City of Port Arthur, in the District of Thunder Bay, a plant for the manufacture of pulp, having a capacity of 125 tons of mechanical pulp per day;

And whereas the Company now employs in its said plant at Port Arthur approximately 175 men, and also affords employment for approximately 500 men in the woods' operations carried on to provide the said plant with a supply of wood;

And whereas the Company has already expended in the erection and equipment of its said plant upwards of \$1,500.00;

And whereas the Company is desirous of enlarging its plant so that the same will ultimately comprise a ground-wood pulp mill with a capacity of 350 tons of mechanical pulp per day; a sulphite pulp mill with a capacity of 125 tons of sulphite pulp per day, and a paper mill with a capacity of at least 400 tons of newsprint per day;

And whereas the expenditure involved in enlarging the Company's plant to the extent and in the manner above described, and in undertaking the completing other works necessary or advisable for the efficient operation of the said enlarged plant, will exceed the sum of Ten Million dollars (\$10,000,000).

And whereas the plant and works of the Company enlarged as aforesaid, will employ approximately 600 men and afford employment for approximately 3,000 additional men in woods' operations;

And whereas by advertisement duly published, The Honourable Minister of Lands and Forests for the Province of Ontario called for tenders to be received by him for the right to cut pulpwood and timber on the areas therein mentioned, including the lands hereinafter referred to, subject to certain terms and conditions of sale;

And whereas in pursuance of such advertisement, the company did deliver its tender to the said Minister, in and by which tender it offered to pay for such pulpwood and timber on the territory described in said tender, the prices following;

Spruce pulpwood—upset price 50c, dues \$1.40, additional 6c, total \$1.96 per cord;

Balsam pulpwood—upset bonus 40c, dues 70c, total \$1.10 per cord;

Poplar—upset bonus 10c, dues 40c, total 50c per cord;

Jackpine pulpwood—upset bonus 10c, dues 40c, total 50c per cord;

Banksian or jackpine—upset bonus \$3.50, dues \$2.50 per M. feet B.M., total \$6.00.

And whereas the prices offered by said Company were the highest received for the territory covered by said tender, and the Company has agreed to pay the prices hereinafter mentioned, which said prices are the highest offered pursuant to such advertisement by any tenderer for pulpwood and timber in the District of Thunder Bay:

And whereas with its tender aforesaid the Company did deposit with the Minister its marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for the sum of Fifty Thousand dollars (\$50,000).

And whereas it will be of great advantage to the Province of Ontario and aid materially in the advancement, development and settlement of the district in which the Company's plant is located to have the plant of the Company enlarged in manner aforesaid;

And whereas the said Company has no assured supply of wood for its present plant or for the proposed enlargements thereof;

And whereas in view of the matters above recited the Minister has deemed it wise and in the public interest to grant to the said Company the right to cut pulpwood as herein provided and has caused this agreement to be prepared so as to secure the erection by the Company of the said enlarged plant and at the same time to assure to the Company a supply of pulpwood sufficient to operate its enlarged plant to its full capacity for a period of twenty-one years from the date hereof or any extension or extensions hereof as are hereinafter provided for;

Now this agreement witnesseth that the Minister with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions hereof, doth hereby grant to the Company for a period of twenty-one years from the date hereof, the right to cut and remove in and upon such parts of the following territory, situate lying and being on the north side of Lake Nipigon, in the District of Thunder Bay, and Province of Ontario, as may from time to time be designated by the Minister, that is to say:

Commencing at a point in the north limit of the Canadian National Railway right-of-way and station grounds (Canadian Northern Ontario line) being distant east astronomically 12 miles from the east limit of the Nipigon Forest Reserve, said point being in the west limit of Long Lake Pulp and Timber Limit; thence north astronomically 34 miles more or less to the south limit of the Canadian National Railway right-of-way (Transcontinental line); thence westerly along the southerly limit of said right-of-way and station grounds to Kenna Creek east of Wagaming Station; thence southeasterly following said Creek to the shore of Lake Nipigon; thence south easterly in a general direction but following all the windings and bays along the shore of Lake Nipigon to a point due west from the southwesterly angle of the station grounds at Jack Pine; thence east astronomically 12 miles more or less to the southwesterly angle of the station grounds at Jack Pine; thence northerly to the northwesterly angle of said station grounds; thence northeasterly following the northerly limit of the Canadian National Railway right-of-way and station grounds to the point of commencement; sufficient pulpwood to enable the Company to operate its enlarged plant continuously to its full capacity; and if at any time during said period of twenty-one years or any extension or extensions thereof as are hereinafter provided for, it should appear that for any reasons whatever there is not sufficient pulpwood timber on the said territory to supply the Company with sufficient pulpwood to enable it to operate its enlarged plant continuously to its full capacity, the Minister will grant to the Company the right to cut pulpwood timber

on other ungranted Crown Lands to be designated by him, and to be situate as near as possible to the City of Port Arthur, on the same terms and conditions as are herein contained:

1. The said Company shall increase the capacity of its said plant until the same shall consist of a ground-wood pulp mill having a daily capacity of three hundred and fifty (350) tons of mechanical pulp; a sulphite pulp mill having a daily capacity of one hundred and twenty-five (125) tons of unbleached sulphite pulp, and a paper mill having a daily capacity of four hundred (400) tons of newsprint. The construction of the additions and enlargements necessary to increase the capacity of the said plant to the extent mentioned in this paragraph, shall be commenced not later than the first day of May 1926, and the first unit consisting of enlargements and extensions to the Company's present plant so that the same will consist of a ground-wood pulp mill having a daily capacity of 120 tons of mechanical pulp; and a paper mill having a daily capacity of one hundred (100) tons of newsprint, shall be completed on or before the first day of December, 1926. The construction of a second unit consisting of such further extensions and additions to the company's plant as shall make the same consist of a ground-wood pulp mill having a daily capacity of two hundred (200) tons of mechanical pulp; a sulphite mill having a daily capacity of seventy (70) tons of sulphite pulp, and a paper mill having a daily capacity of two hundred (200) tons of newsprint, shall be commenced on or before the first day of October 1927, and shall be completed on or before the first day of December 1929; and the construction of a third unit consisting of such further extensions and additions to the Company's plant as shall make the same consist of a ground-wood pulp mill having a daily capacity of three hundred and fifty (350) tons of mechanical pulp, a sulphite mill having a daily capacity of one hundred and twenty-five (125) tons of sulphite pulp, and a paper mill having a daily capacity of four hundred (400) tons of newsprint shall be commenced on or before the 31st day of December 1929, and shall be completed on or before the 31st day of December 1931.

2. Expenditure shall be made by the Company in the construction of such extensions and additions as follows: One Hundred and Twenty-Five Thousand dollars (\$125,000) on or before the 1st day of July 1926, and the proper additional amount necessary to complete said first unit, and not less than One Million, Five Hundred Thousand dollars (\$1,500,000) on or before the 31st day of December 1926, the full amount necessary to complete said second unit, and not less than Two Million dollars (\$2,000,000) additional, on on or before the 31st day of December, 1929, and the full amount required to construct the third unit and to complete in all respects, extensions and enlargements to the said plant to the full extent mentioned herein not later than the 31st day of December 1931.

3. The plans for the additions and enlargements to the Company's said plant hereinbefore mentioned shall be submitted to and approved of by the Minister, and such additions and enlargements shall be completed within the time above mentioned to the satisfaction of the Minister.

4. The said Company shall expend in additions, enlargements and betterments to its said existing plant and in works necessary and advisable for the efficient operation thereof the sum of Ten Million dollars (\$10,000,000) or such other sum as shall be sufficient to construct and complete in all respects a modern and well-equipped pulp mill and paper plant of the character hereinbefore provided for, and shall furnish proof to the satisfaction of the Minister of such expenditure.

5. The Company shall from and after the 31st day of December 1926, constantly employ at least 275 men in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of One Thousand (1,000) men, until after the 31st day of December 1929, and from and after the 31st day of December 1929, until the 31st day of December 1931, the said Company will constantly employ at least four hundred (400) men in or about the completion of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of fifteen hundred (1,500) men, and from and after the 31st day of December 1931, the Company will constantly employ at least six hundred (600) men in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year, for an average of three thousand (3,000) men, during the whole of the remainder of said period of twenty-one (21) years;

Provided that if the Company through accident, interruption to power or other cause not attributable to any default on its part shall at any time or times be unable to give continuous employment to the number of men provided for in this paragraph, the Minister may by order in writing under his hand, relieve the Company from time to time from its liability so to do. No such order shall in anyway invalidate this paragraph or relieve the Company from liability thereunder, other than and to the extent specifically set forth in such written order.

6. The deposit of Fifty Thousand dollars (\$50,000) made by the Company with its tender, shall remain on deposit until the enlarged plant hereinbefore provided for, has been completed, and put in operation. After said plant has been completed and is in regular operation, the said Fifty Thousand (\$50,000) may be applied on account of moneys payable by the Company hereunder. The Company shall also furnish a bond of an approved Guarantee Company satisfactory to the Minister in the sum of Two Hundred Thousand dollars (\$200,000) to secure the performance of its obligations hereunder.

7. The woods and timber covered by this agreement are spruce, balsam, banksian or jackpine, poplar and whitewood trees.

8. The right to sell banksian or jackpine other than for pulpwood and to authorize the purchaser to cut and remove the same, is hereby specifically reserved to the Crown, but it is distinctly understood and agreed that the Company shall cut and remove from the territory from time to time designated by the Minister as hereinafter provided, banksian or jackpine logs and all other merchantable timber of every character and kind whatsoever upon said area, so that the same may be cut clean and according to approved lumbering methods, in such manner as the Minister may from time to time direct and to his satisfaction.

9. All banksian or jackpine cut into logs under the provisions of paragraph 8 hereof shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

10. The Company shall not hew any timber into ties without having first obtained the consent in writing of the Minister, and if such consent be given, the price to be paid by the Company for ties so hewn shall be fixed by the Minister in and by the writing containing such consent.

11. Whenever in the opinion of the Minister there is spruce, balsam or poplar too large for pulpwood on the areas in which the Company is operating, the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing.

12. All spruce, balsam or poplar cut into logs, under the provisions of the preceding paragraph hereof shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

13. All pulpwood cut by the Company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council and requiring the expenditure of no less labour and money in the manufacture thereof than is required in the manufacture of newsprint at the Company's said plant at Port Arthur or adjacent thereto.

14. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

- (a) All red and white pine on said territory is reserved to the Crown.
- (b) The Crown reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian Reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located, or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests, entitles the applicant or applicants to a lease or patent of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.
- (c) All water powers and privileges on the said territory are reserved to the Crown.
- (d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.
- (e) In no event shall cutting be performed within one-half mile in perpendicular width along the shores of Lake Nipigon, without the consent in writing of the Minister of Lands and Forests.

15. On or before the first of September in each year the Company shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut at any other place or places in said territory other than and except those specially designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Company shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

16. The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of pulpwood and timber on such area, that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Company to leave any suitable seed trees

that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such pulpwood and timber he may deem proper.

17. The Company shall take such precaution and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile, or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The Minister shall fix the area upon which fire protection charge is payable.

18. Pulpwood taken out in four or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

19. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Company hereby is the right to cut wood and timber hereinbefore described sufficient to enable the Company to operate its enlarged plant continuously to its full capacity during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for on such areas within said territory or within any other territory as from time to time may be designated by the Minister pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Lieutenant-Governor-in-Council, or by the Minister.

20. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government in addition to all the rights and powers herein contained shall have all the rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under The Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up to the 31st of October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

21. The Minister shall have the right to inspect the timber operations carried on by the Company at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber, which should be removed, is being left or destroyed he shall have the right to estimate the said timber and charge the same to the Company at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister of Lands and Forests.

22. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

23. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Company in accordance with the Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

24. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

25. All bona fide accounts due for settlers' pulpwood purchased by the Company, shall constitute a first claim against the Company.

26. The Company shall pay to the Party of the First Part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timbers:

Spruce pulpwood per cord, an upset price of 50c in addition to Crown dues of \$1.40 with an additional 10c added, making a total of \$2 per cord.

Balsam pulpwood per cord, an upset price of 40c in addition to Crown dues of 70c making a total of \$1.10 per cord.

Poplar pulpwood per cord, an upset price of 10c in addition to Crown dues of 40c making a total of 50c per cord.

Jack Pine pulpwood per cord, an upset price of 10c in addition to Crown dues of 40c making a total of 50c per cord.

Jack Pine (per M ft. B.M.) an upset price of \$3.50 per M ft. B.M. in addition to Crown dues of \$2.50 per M ft. B.M. making a total of \$6.00 per M ft. B.M.

27. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on its part herein contained.

28. Failure to enlarge said plant or to make the expenditure hereinbefore provided for or to employ the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on its part herein contained, shall forfeit all the right of the Company hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

29. If upon the termination of said period of twenty-one years the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such renewals the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant the Minister shall grant to the Company a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

30. The manufacturing clauses of the Crown Timber Act and amendments to the said The Crown Timber Act, and all other clauses, Acts and regulations relating in any way to the cutting of timber on Crown lands, shall be applicable to the operations of the Company, and shall be binding upon the Company as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, Acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Company by virtue of this agreement.

31. That as required by the Minister upon reasonable notice the Company will at the market price from time to time furnish to Canadian Publishers each month such a proportion of the output of the paper mill as shall be demanded by the Minister; provided however, that the Company shall not be required to so furnish more than fifteen per cent. from time to time of its total output.

32. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Company.

33. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED

in the presence of:

(Sgd) EVA HARRISON
as to James Lyons

(Seal) B. J. HEGER
Frank L. Steib.

JAMES LYONS (SEAL)

THUNDER BAY PAPER COMPANY,
LIMITED.

GEORGE W. MEAD, President.

EARL B. BEDFORD, Secretary.

Appendix No. 34

AGREEMENT made and entered into this Thirtieth day of January A.D. 1926.

BETWEEN:

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter referred to as "the Minister,"

Of the First Part,

—AND—

NIPIGON CORPORATION LIMITED, hereinafter referred to as "the Company,"

Of the Second Part.

Whereas the Company is now operating at Nipigon in the Township of Nipigon, in the District of Thunder Bay, a plant for the manufacture of pulp, having a capacity of 80 tons of mechanical pulp per day;

And whereas the Company now employs in its said plant at Nipigon approximately 100 men, and also affords employment for approximately 300 men in the woods' operations carried on to provide the said plant with a supply of wood;

And whereas the Company has already expended in the erection and equipment of its said plant upwards of \$1,250,000;

And whereas the Company is desirous of enlarging its plant so that the same will ultimately comprise a ground-wood pulp mill with a capacity of 350 tons of mechanical pulp per day; a sulphite pulp mill with a capacity of 125 tons of sulphite pulp per day, and a paper mill with a capacity of at least 400 tons of newsprint per day;

And whereas it is estimated that the expenditure involved in enlarging the Company's plant to the extent and in the manner above described, and in undertaking and completing other works necessary or advisable for the efficient operation of the said enlarged plant, will exceed the sum of Ten Million dollars (\$10,000,000).

And whereas the plant and works of the Company enlarged as aforesaid will employ approximately 500 men and afford employment for approximately 3,000 additional men in woods' operations.

And whereas by advertisement duly published The Honourable the Minister of Lands and Forests for the Province of Ontario called for tenders to be received by him for the right to cut pulpwood and timber on the areas therein mentioned, including the lands hereinafter described, subject to certain terms and conditions of sale.

And whereas in pursuance of such advertisement the Company did deliver its tender to the said Minister in and by which tender it offered to pay for such pulpwood and timber on the territory described in said tender, the prices following: Spruce pulpwood, upset price 50c, dues \$1.40, additional 8c, total \$1.98 per cord; Balsam pulpwood, upset bonus 40c, dues 70c, total \$1.10 per cord; Poplar, upset bonus 10c, dues 40c, total 50c, per cord; Jackpine pulpwood, upset bonus 10c, dues 40c, total 50c, per cord; Banksian or Jackpine, upset bonus \$3.50, dues \$2.50 per M ft. B.M., total \$6.00;

And whereas the prices offered by said Company were the highest received for the territory covered by said tender, and the Company has agreed to pay the prices hereinafter mentioned, which said prices are the highest offered pursuant to such advertisement by any tenderer for pulpwood and timber in the District of Thunder Bay;

And whereas with its tender aforesaid the Company did deposit with the Minister its marked cheque payable to the Honourable the Treasurer of the Province of Ontario for the sum of Fifty Thousand dollars (\$50,000).

And whereas it will be of great advantage to the Province of Ontario and aid materially in the advancement, development and settlement of the district in which the Company's plant is located to have the plant of the Company enlarged in manner aforesaid;

And whereas the said Company has no assured supply of wood for its present plant or for the proposed enlargements thereof;

And whereas in view of the matters above recited the Minister has deemed it wise and in the public interest to grant to the said Company the right to cut pulpwood as herein provided and has caused this agreement to be prepared so as to secure the erection by the Company of the said enlarged plant and at the same time to assure to the Company a supply of pulpwood sufficient to operate its enlarged plant to its full capacity for a period of twenty-one years from the date hereof or any extension or extensions hereof as are hereinafter provided for;

Now this agreement witnesseth that the Minister with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions hereof, doth hereby grant to the Company for a period of twenty-one years from the date hereof, the right to cut and remove in and upon such parts of the following territory as may from time to time be designated by the Minister, that is to say;

Parcel 1:

Commencing at the southeast angle of the Township of Ledger; thence east along the south boundary of the Nipigon Forest Reserve 22 miles to the southeast angle thereof; thence north astronomically along the east boundary of the Nipigon Forest Reserve 8 miles; thence east astronomically 12 miles to the west limit of Long Lake Pulp and Timber Limit; thence north astronomically 34 miles more or less to the south limit of the Canadian National Railway (Canadian Northern Ontario line) right of way; thence southwesterly along the southerly limit of Canadian National Railway right of way and station grounds aforesaid to the southwesterly angle of the station grounds at Jack Pine; thence west astronomically 12 miles more or less to the shores of Lake Nipigon; thence southerly and westerly along the shore of Lake Nipigon and following all the windings of the bays thereof to the northwest angle of the township of Innes; thence south along the west limit of the township of Innes 6 miles 67 chains 74 links to the southwest angle of said township; thence east along the south limit of said township 6 miles to the southeast angle thereof; thence continuing east astronomically 6 miles more or less to a point north astronomically from the northwest angle of the township of Purdom; thence south astronomically 6 miles more or less to the northwest angle of the township of Purdom; thence east along the north boundary of the township of Purdom and the township of Ledger to the northeast angle of the township of Ledger; thence south along the east limit of the township of Ledger 7 miles more or less to the point of commencement, excepting the Indian Reserve in Innes Township;

Parcel 2:

Commencing at the southeast angle of the township of Ledger; thence south astronomically 7 miles to a point east astronomically from the northeast angle of the township of Nipigon; thence west astronomically 5 miles 30 chains more or less to the northeast angle of the township of Nipigon; thence west along the north limit of the township of Nipigon, 60 chains more or less to the shore of Lake Helen; thence northerly along the east shores of Helen and Polly Lakes to the south limit of location 8 P; thence east and north along the south and east limits of location 8 P and along the east limit of location 6 P to the south limit of the township of Ledger; thence east along the south limit of the township of Ledger 6 miles more or less, to the point of commencement:—

Sufficient pulpwood to enable the Company to operate its enlarged plant continuously to its full capacity; and if at any time during said period of twenty-one years or any extension or extensions thereof as are hereinafter provided for, it should appear that for any reason whatever, there is not sufficient pulpwood timber on the said territory to supply the Company with sufficient pulpwood to enable it to operate its enlarged plant continuously to its full capacity the Minister will grant to the Company the right to cut pulpwood timber on other ungranted Crown Lands to be designated by him, and to be situate as near as possible to the Village of Nipigon, on the same terms and conditions as are herein contained:

1. The said Company shall increase the capacity of its said plant until the same shall consist of a ground-wood pulp mill having a daily capacity of three hundred and fifty (350) tons of mechanical pulp; a sulphite pulp mill having a daily capacity of one hundred and twenty-five (125) tons of sulphite pulp, and a paper mill having a daily capacity of four hundred (400) tons of newsprint. The construction of the additions and enlargements necessary to increase the capacity of the said plant to the extent mentioned in this paragraph shall be commenced forthwith and the first unit consisting of such extensions and additions to the Company's present plant as shall make the same consist of a ground-wood pulp mill having a daily capacity of one hundred (100) tons of mechanical pulp, a sulphite pulp mill having a daily capacity of sixty (60) tons of sulphite pulp, and a paper mill having a daily capacity of one hundred (100) tons of newsprint, shall be completed on or before the 31st day of December 1927. The construction of a second unit consisting of such further extensions and additions to the company's plant as shall make the same consist of a ground-wood pulp mill having a daily capacity of one hundred and seventy-five (175) tons of mechanical pulp, a sulphite pulp mill having a daily capacity of one hundred (100) tons of sulphite pulp and a paper mill having a daily capacity of two hundred (200) tons of newsprint, shall be commenced on or before the 1st day of October 1927, and shall be completed on or before the 31st day of December 1929; and the construction of a third unit consisting of such further extensions and additions to the Company's plant as shall make the same consist of a ground-wood pulp mill having a daily capacity of three hundred and fifty (350) tons of mechanical pulp, a sulphite mill having a daily capacity of one hundred and twenty-five (125) tons of sulphite pulp and a paper mill having a daily capacity of four hundred (400) tons of newsprint, shall be commenced on or before the 31st day of December 1929, and shall be completed on or before the 31st day of December 1931. Expenditure shall be made by the Company in the construction of such extensions and additions as follows: One Hundred and Twenty-Five Thousand dollars (\$125,000) on or before the 1st day of July 1926; Two Million Six Hundred and Twenty-Five Thousand dollars (\$2,625,000) on or before the 1st day of July 1927; and the total amount necessary to complete the first unit above described on or before the 31st day of December 1927. The full amount necessary to complete the second unit shall be expended on or before the 31st day of December 1929, and the full amount required to construct the third unit and to complete in all respects extensions and enlargements to the said plant to the full extent mentioned in this paragraph shall be expended not later than the 31st day of December 1931.

2. The said Company shall expend in additions, enlargements and betterments to its said existing plant and in works necessary and advisable for the efficient operation of the said plant either at Nipigon or at some other point in the Province of Ontario approved by the Lieutenant-Governor-in-Council, the sum of Ten Million dollars (\$10,000,000) or such other sum as shall be sufficient to construct and complete in all respects a modern and well-equipped pulp and paper plant of the dimensions and character provided for in the preceding paragraph hereof, and shall furnish proof to the satisfaction of the Minister of such expenditure.

3. The plans for the additions and enlargements to the Company's said plant hereinbefore mentioned shall be submitted to and approved of by the Minister, and such additions and enlargements shall be completed within the time above mentioned to the satisfaction of the Minister.

4. The Company shall from and after the 31st day of December 1927, constantly employ at least 130 men in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of six hundred (600) men, until the 31st day of December 1929, and from and after the 31st day of December 1929 until the 31st day of December 1931, the said Company will constantly employ at least two hundred and fifty (250) men in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of fifteen hundred (1,500) men, and from and after the said 31st day of December 1931, the Company will constantly employ at least five hundred (500) men in or about the operation of said enlarged plant, and it will directly or indirectly afford employment in its woods' operations for not less than six months in each year, for an average of three thousand (3,000) men, during the whole of the remainder of said period of twenty-one years.

Provided that if the Company through accident, interruption to power or other cause not attributable to any default on its part shall at any time or times be unable to give continuous employment to the number of men provided for in this paragraph, the Minister may by order in writing under his hand, relieve the Company from time to time from its liability so to do. No such order shall in any way invalidate this paragraph or relieve the Company from liability thereunder, other than and to the extent specifically set forth in such written order.

5. The deposit of Fifty Thousand dollars (\$50,000) made by the Company with its tender, shall remain on deposit until the enlarged plant hereinbefore provided for, has been completed, and put in operation. After said plant has been completed and is in regular operation, the said Fifty Thousand dollars (\$50,000) may be applied on account of moneys payable by the Company hereunder. The Company shall also furnish a bond of an approved guarantee company satisfactory to the Minister in the sum of Two Hundred Thousand dollars (\$200,000) to secure the performance of its obligations hereunder.

6. The woods and timber covered by this agreement are spruce, balsam, banksian or jackpine, poplar and whitewood trees.

7. The right to sell banksian or jackpine other than for pulpwood and to authorize the purchaser to cut and remove the same, is hereby specifically reserved to the Crown but it is distinctly understood and agreed that the Company shall cut and remove from the territory from time to time designated by the Minister as hereinafter provided, banksian or jackpine logs and all other merchantable timber of every character and kind whatsoever upon said area, so that the same may be cut clean and according to approved lumbering methods, in such manner as the Minister may from time to time direct and to his satisfaction.

8. All banksian or jackpine cut into logs under the provisions of paragraph 7 hereof shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

9. The Company shall not hew any timber into ties without having first obtained the consent in writing of the Minister, and if such consent be given, the price to be paid by the Company for ties so hewn shall be fixed by the Minister in and by the writing containing such consent.

10. Whenever in the opinion of the Minister there is spruce, balsam or poplar too large for pulpwood on the areas in which the Company is operating,

the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing.

11. All spruce, balsam or poplar cut into logs, under the provisions of the preceding paragraph hereof shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

12. All pulpwood cut by the Company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council and requiring the expenditure of no less labour and money in the manufacture thereof than is required in the manufacture of newsprint at the Company's said plant at Nipigon, or at some other place in the Province of Ontario approved by the Lieutenant-Governor-in-Council.

13. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

- (a) All red and white pine on said territory is reserved to the Crown.
- (b) The Crown reserves and excepts from the lands above described, the right of way of any and all railways or travelled roads, islands, Indian Reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests entitles the applicant or applicants to a lease or patent of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.
- (c) All water powers and privileges on the said territory are reserved to the Crown.
- (d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.
- (e) In no event shall cutting be performed within one-half mile in perpendicular width along the shores of Lake Nipigon, without the consent in writing of the Minister of Lands and Forests.

14. On or before the first of September in each year, the Company shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut at any other place or places in said territory other than and except those specially designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Company shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

15. The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of pulpwood and timber on such area, that he may think right and proper for the purpose of preserving young timber

in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Company to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such pulpwood and timber he may think proper.

16. The Company shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile, or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The Minister shall fix the area upon which fire protection charge is payable.

17. Pulpwood taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above 8 feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

18. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Company hereby is the right to cut wood and timber hereinbefore described sufficient to enable the Company to operate its enlarged plant continuously to its full capacity during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for, on such areas within said territory or within any other territory as from time to time may be designated by the Minister, pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Lieutenant-Governor-in-Council or by the Minister.

19. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government in addition to all the rights and powers herein contained shall have all the rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under The Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up to the 31st October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

20. The Minister shall have the right to inspect the timber operations carried on by the Company at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber, which should be removed, is being left or destroyed, he shall have the right to estimate the said timber and charge the same to the company at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister of Lands and Forests.

21. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

22. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and

at the expense of the Company in accordance with the Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

23. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

24. All bona fide accounts due for settlers' pulpwood purchased by the Company, shall constitute a first claim against the Company.

25. The Company shall pay to the party of the First Part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timber:

Spruce pulpwood—per cord, an upset price of 50c in addition to Crown Dues of \$1.40, with an additional 10c added, making a total of \$2.00 per cord.

Balsam pulpwood—per cord, an upset price of 40c in addition to Crown Dues of 70c, making a total of \$1.10 per cord.

Poplar pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c, making a total of 50c per cord.

Jackpine pulpwood—per cord, an upset price of 10c in addition to Crown Dues of 40c, making a total of 50c per cord.

Jackpine—(per M. feet B.M.) an upset price of \$3.50 per M.F.B.M. in addition to Crown Dues of \$2.50 per M.F.B.M., making a total of \$6.00 per M.F.B.M.

26. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on its part herein contained.

27. Failure to enlarge said plant or to make the expenditure hereinbefore provided for or to employ the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on its part herein contained, shall forfeit all the right of the Company hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

28. If upon the termination of said period of twenty-one years the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such renewals the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant, the Minister shall grant to the Company a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

29. The manufacturing clauses of The Crown Timber Act and amendments to the said The Crown Timber Act, and all other clauses, Acts and regulations relating in any way to the cutting of timber on Crown lands, shall be applicable to the operations of the Company, and shall be binding upon the Company as

fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, Acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Company by virtue of this agreement.

30. That as required by the Minister upon reasonable notice the Company will at the market price from time to time furnish to Canadian Publishers each month such a proportion of the output of the paper mill as shall be demanded by the Minister; provided however, that the Company shall not be required to so furnish more than fifteen per cent. from time to time of its total output.

31. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Company.

32. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
in the presence of:

(Sgd.) J. B. THOMPSON,
as to JAS. LYONS.

(Sgd.) A. STEELE.

(SEAL)

(Sgd.) JAS. LYONS.

NIPIGON CORPORATION LIMITED.

(Sgd.) N. A. TIMMINS,
President.

(Sgd.) J. I. RANKIN,
Sec. Treas.

(SEAL)

Appendix No. 35

AGREEMENT made and entered into this Eighth day of March, A.D. 1926.
BETWEEN:—

HIS MAJESTY THE KING, represented herein by the Minister of
Lands and Forests of the Province of Ontario (hereinafter referred to
as "the Minister")

of the First Part;

—And—

C. HOWARD SMITH, of the City of Montreal, in the Province of
Quebec, Gentleman (hereinafter referred to as "the Grantee")
of the Second Part.

Whereas by advertisement duly published The Honourable the Minister of
Lands and Forests for the Province of Ontario called for tenders to be received
by him for the right to cut poplar timber on the areas therein mentioned, which
said areas are hereinafter more particularly mentioned and described, subject
to certain terms and conditions of sale;

And whereas in pursuance of such advertisement the Grantee did deliver
his tender to the said Minister, in and by which tender he offered to pay for such
poplar timber on the territory in said tender and hereinafter described, the
prices hereinafter mentioned, which said prices were the highest offered for the
said timber; and whereas the tender of the Grantee was the highest tender
received by the said Minister pursuant to such advertisement;

And whereas with his tender aforesaid, the Grantee did deposit with the
Minister his marked cheque payable to the Honourable the Treasurer of the
Province of Ontario, for the sum of Twenty-five thousand Dollars (\$25,000);

And whereas the Grantee is interested in and connected with the Howard
Smith Paper Mills, Limited, now operating a pulp and paper plant at Cornwall,
in the Province of Ontario, producing approximately 120,000 pounds of bleached
sulphite pulp per day, approximately 100,000 pounds of writing and fine book
paper per day, approximately 22,000 pounds of chlorine per day, and approxi-
mately 12,000 pounds of caustic soda per day, and having invested in its said
plant upwards of Three Million Dollars (\$3,000,000);

And whereas the said Howard Smith Paper Mills, Limited, employs in its
said plant at Cornwall 250 men;

And whereas the Grantee is desirous of constructing or securing the con-
struction of a plant to be operated in conjunction with the said plant of the
Howard Smith Paper Mills, Limited, with an initial capacity of approximately
12,000 tons per annum of bleached soda pulp, the plans of such plant to provide
for the extension thereof to a capacity of approximately 25,000 tons of bleached
soda pulp per annum;

And whereas it will require approximately 25,000 cords of pulpwood to
supply the said 12,000 ton plant above mentioned, and more than double the
amount when the plant is extended to the full proposed capacity thereof as above
mentioned;

And whereas the proposed 12,000 ton plant will employ approximately 50
men in its operation, and when bush operations on the limits hereinafter referred
to commence, approximately 125 men will be required for such operations;

And whereas the expenditure involved in the construction and equipment of said proposed plant to a capacity of approximately 12,000 tons per annum, as aforesaid, and in undertaking and completing all works necessary or advisable for the efficient operation thereof, will approximate Seven Hundred Thousand Dollars (\$700,000);

And whereas the construction and operation of said plant will be of benefit and advantage to the Province of Ontario;

And whereas in view of the matters above recited, the Minister has deemed it wise and in the public interest to grant to the said Grantee the right to cut poplar timber as hereinafter provided, and has caused this agreement to be prepared so as to secure the erection by the Grantee of said plant and to define and determine the conditions relating to the cutting of said wood and the payment therefor;

Now this agreement witnesseth that the Minister with the approval of the Lieutenant-Governor-in-Council, and subject to all terms and conditions hereof, doth hereby grant to the Grantee for a period of twenty-one years from the date hereof, the right to cut and remove poplar timber in, upon and from such parts of the following territory as may from time to time be designated by the Minister, that is to say:—the following townships and parts of townships traversed by or lying in the vicinity of the Canadian National and the Temiskaming and Northern Ontario Railways, namely:—The townships of Ivanhoe and Folyet, in the District of Sudbury; the townships of McElroy, Lee and Blackstock, the township of Boston, excepting the south-west part thereof, and the east half of the township of Langmuir, in the District of Temiskaming, and the Township of Thomas in the District of Cochrane,—sufficient poplar timber to enable the Grantee to operate his said proposed plant continuously to its full capacity; and if at any time during said period of twenty-one years or any extension or extensions thereof as are hereinafter provided for, it should appear that for any reason whatever there is not sufficient poplar timber on the said territory to supply the Grantee with sufficient poplar timber to enable him to operate his said plant continuously to its full capacity, the Minister will grant to the Grantee the right to cut poplar timber on other ungranted Crown lands to be designated by him, and to be situate as near as possible to the territory above described, on the same terms and conditions as are herein contained;

1. The said Grantee shall erect a plant with an approximate initial capacity of 12,000 tons per annum of bleached soda pulp, the plans of such plant to provide for the extension of the same to a capacity of approximately 25,000 tons per annum. The construction of the said plant shall be commenced on or before the first day of September, 1926, and shall be completed on or before 31st day of December, 1928.

2. Expenditure shall be made by the Grantee in the construction of such plant as follows:—\$200,000 on or before the first day of July 1927, and the full amount required to construct and complete the same to a capacity of approximately 12,000 tons per annum of bleached soda pulp not later than the 31st day of December, 1928.

3. The said plant shall be completed within the time above mentioned to the satisfaction of the Minister in accordance with plans approved by the Minister.

4. The said Grantee shall expend in the construction of said plant and in works necessary and advisable for the efficient operation thereof the sum of approximately \$700,000.

5. The Grantee shall, from and after the 31st day of December, 1928, constantly employ at least 50 men in or about the operation of said plant to be constructed as aforesaid, and he shall, either directly in the woods' operations to be carried on by him on the said limits, or indirectly by the purchase of wood from settlers or others in the Province of Ontario, afford employment for not less than six months in each year for an average of 125 men.

6. The deposit of Twenty-Five Thousand Dollars (\$25,000) made by the Grantee with his tender shall remain on deposit until the 12,000 ton plant hereinbefore provided for has been completed and put in operation. After said plant is completed and is in regular operation, the said Twenty-Five Thousand Dollars may be applied on account of moneys payable to the Crown by the Grantee hereunder, for dues or charges accruing from the timber cut or for ground rents payable to the Crown, or otherwise. The Grantee when and as required shall also furnish a bond of an approved Guarantee Company in form and in amount satisfactory to the Minister to secure the due performance of all his obligations hereunder.

7. All timber other than poplar, and the right to sell or otherwise dispose of the same as the Minister may see fit, is hereby specifically reserved to the Crown, but it is distinctly understood and agreed that the Grantee shall cut and remove from the territory from time to time designated by the Minister, as hereinafter provided, wherever required by the Minister so to do, all other merchantable timber of every character and kind whatsoever upon said area that may be necessary to make a clean cut operation according to approved lumbering methods, such cutting to be done in such manner as the Minister may from time to time direct and to his satisfaction.

8. The Grantee shall pay such prices for timber other than poplar cut under the provisions of the preceding paragraph hereof, as may from time to time be fixed by the Minister, and all timber other than poplar so cut, shall be manufactured into lumber, ties or other manufactured products to the satisfaction of the Minister in the Province of Ontario.

9. All poplar timber cut by the Grantee under this agreement shall be manufactured into soda pulp, but as the consumption of paper in Canada is limited, a portion of this soda pulp will be exported, but it is agreed that the pulp manufactured of wood taken off these areas will be manufactured into paper in Canada, in such grades as Fine Book and Coating Papers, and any soda pulp that is exported will be manufactured from wood purchased from other sources.

10. It is distinctly understood that the right is hereby reserved to the Crown to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes, as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:—

- (a) All red and white pine on said territory is reserved to the Crown.
- (b) The Crown reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian Reserves and all lands under the water of all rivers, lakes and streams; also all lands heretofore patented, licensed, leased, located, or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests, entitles the applicant or applicants to a lease or patent of such lands, together with the right to sell, lease, locate or otherwise dispose of any

lands within the area allocated for settlement, mining, summer resort or other purposes, on such terms and conditions as may be deemed advisable.

- (c) All water powers and privileges on the said territory are reserved to the Crown.
- (d) The Grantee shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without special permission in writing of the Minister.

11. On or before the 1st of September in each year, should the Grantee intend to conduct woods' operations on the limits hereby granted during the course of the then coming season, the Grantee shall apply to and get the permission in writing of the Minister for the area within said territory on which the cutting for the then coming season shall take place, and the Grantee shall not be entitled to cut at any other place or places in said territory other than and except those specifically designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Grantee shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

12. The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of poplar and other timber on such areas, that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Grantee to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such poplar and other timber he may deem proper.

13. The Grantee shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council.

14. Poplar taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Poplar taken out in lengths above eight feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

15. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Grantee hereby is the right to cut poplar and such other timber (if any) as may be designated by the Minister, on such areas within said territory as from time to time may be designated by the Minister, pursuant and subject to the terms and conditions herein contained, and subject to such further terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Lieutenant-Governor-in-Council, or by the Minister.

16. Proper sworn returns of the quantity of wood and other timber cut during the course of any season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government in addition to all the rights and powers herein contained shall have all the

rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under the Crown Timber Act. On all arrears of accounts due and payable October 1st interest at the rate of six per cent. per annum shall be charged up to the 31st of October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

17. The Minister shall have the right to inspect the timber operations carried on by the Grantee at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show that the timber operations are carried on in such a way that any merchantable or valuable timber which should be removed, is being left or destroyed, he shall have the right to estimate the said timber and charge the same to the Grantee at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an officer of the Crown, and the operation has been declared satisfactory by the Minister.

18. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters which shall be or may be injurious to game and fish life.

19. All slash made about camp, dumps, along tote roads, railroads, or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Grantee in accordance with the Forest Fire Prevention Act and amendments thereto, and regulations made thereunder.

20. The Grantee shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

21. All bona fide accounts due for settlers' pulpwood purchased by the Grantee shall constitute a first claim against the Company.

22. The Grantee shall pay to the Crown, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the sum of 52c per cord, being the upset bonus price of 10c per cord, Crown dues of 40c per cord, and 2c per cord in addition.

23. The Grantee hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on his part herein contained.

24. The failure to construct said plant or to make the expenditure hereinbefore provided for, or to employ or indirectly to provide employment for the men as hereinbefore set forth or to observe, perform and keep any of the covenants, agreements, provisions and conditions on his part herein contained, shall forfeit all the right of the Grantee hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

25. If upon the termination of said period of twenty-one years the Grantee shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, he shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such extension, the Grantee shall have in all respects fully performed the terms and conditions hereinbefore set forth, and shall have maintained his plant and property in a high state of efficiency to the satisfaction of the Minister, in all

respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant, the Minister shall grant to the Grantee a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

26. The manufacturing clauses of the Crown Timber Act and amendments to the said The Crown Timber Act, and all other clauses, acts and regulations relating in any way to the cutting of timber on Crown lands, shall be applicable to the operations of the Grantee, and shall be binding upon the Grantee as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Grantee by virtue of this agreement.

27. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Grantee.

28. This agreement shall be binding upon and enure to the benefit of the Grantee, his heirs, executors, administrators and assigns, but this agreement and the rights of the grantee hereunder shall not be assigned without the consent of the Minister.

29. The word "Crown" herein shall mean His Majesty, his heirs and successors in the right of the Province of Ontario.

The word "Minister" herein shall mean and include the Minister of Lands and Forests of the Province of Ontario, or any Minister of the Crown in said Province performing the duties of the Ministers of Lands and Forests in his absence, or during a vacancy in that office.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
in the presence of

"E. A. JONES."
Witness as to the signature
of
RUBY PEARL FERGUSON.

"C. HOWARD SMITH."

"G. H. FERGUSON."

PART II.

Appendix No. 36

REPORT OF THE FORESTRY BRANCH, 1926

SIR,—The report of the work of this Branch for the year ending October 31st, 1926, is given under the sections of Forest Fire Protection, Air Service, Air Operations, Reforestation and Forest Investigation.

I.—FOREST FIRE PROTECTION

(1) *Legislation*

No changes were made in the Forest Fires Prevention Act during the year 1926.

(2) *Organization and Personnel*

In the early part of May a new district office was opened at Sioux Lookout for the new Hudson Inspectorate under the jurisdiction of a technical forester with one technical assistant. This Inspectorate consisted of four Chief Ranger Districts, C.G.R. West, C.G.R. Central and Kenora, all previously in the Western Inspectorate, and the newly formed Red Lake Chief Ranger District. The Western Inspectorate now consists of the three districts, Rainy River, Thunder Bay and Nipigon.

The resignation in September of the Fire Inspector in charge of the Oba Inspectorate resulted in the transfer to that Inspectorate as District Forester of the Forestry Assistant in the Algonquin Inspectorate.

Two District Foresters, those in charge of the Sudbury and the Trent Inspectorates, resigned in the early spring to accept more remunerative positions elsewhere. The technical assistants in the two Inspectorates were then placed in charge. Later a new Inspectorate, North Bay, was formed from part of the Sudbury Inspectorate and includes the Chief Ranger Districts of Timagami North, Timagami East and North Bay. The Inspectorate is in charge of the Forester previously at North Bay, with one Forestry Assistant.

A Forestry Assistant was also appointed for the Soo Inspectorate.

The total field supervisory staff for the ten inspectorates was as shown in the accompanying table, seven District Foresters, one Assistant District Forester, one Forester, five Forestry Assistants, one Forest Supervisor, four Fire Inspectors, one Assistant Fire Inspector, thirty-nine Chief Rangers and one hundred and ten Deputy Chief Rangers. This allowed direct supervision of one Chief or Deputy Chief Ranger to an average of every six rangers.

ORGANIZATION AND PERSONNEL

Inspec- torate	Area(acres)	Head- quarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Hudson...	18,291,000	Sioux Lookout	1—District Forester 1—Asst. District Forester 4—Chief Rangers 11—Deputy Chief Rangers	Red Lake C.G.R. West C.G.R. Central . . . Kenora	Pine Ridge Sioux Lookout Armstrong Kenora
Western ..	16,310,000	Port Arthur	1—Forest Supervisor 3—Chief Rangers 11—Deputy Chief Rangers	Rainy River Thunder Bay Nipigon	Fort Frances Port Arthur Macdiarmid
Oba	19,840,000	Oba	1—Fire Inspector 1—Asst. Fire Inspector . . . 5—Chief Rangers 13—Deputy Chief Rangers	C.G.R. East Hearst Longlac Oba Franz	Nakina Hearst Longlac Oba Franz
Cochrane .	18,247,000	Cochrane	1—Fire Inspector 7—Chief Rangers 13—Deputy Chief Rangers	Smoky Falls Kapusksasing Cochrane Matheson Timmins Abitibi New Liskeard . . .	Smoky Falls Kapusksasing Cochrane Matheson Timmins Lowbush Englehart
Soo	7,394,000	Sault Ste. Marie	1—District Forester 1—Forestry Assistant 3—Chief Rangers 11—Deputy Chief Rangers	A. C. R. Blind River Mississagi South	Sand Lake Blind River Ranger Lake
Sudbury ..	13,397,000	Sudbury..	1—District Forester 1—Forester 2—Fire Inspectors 7—Chief Rangers 24—Deputy Chief Rangers	Foleyet West Foleyet East Mississagi West . . . Mississagi East . . . Webbwood Timagami West . . . Sudbury North . . . Sudbury South . . .	Elsas Gogama Chapleau Biscotasing Nairn Centre Mattagami Post Skead Sudbury
North Bay	4,788,000	North Bay	1—District Forester 1—Forestry Assistant 3—Chief Rangers 11—Deputy Chief Rangers	Timagami North . . Timagami East . . . North Bay	Elk Lake Timagami North Bay
Georgian Bay	4,591,000	Parry Sound	1—District Forester 1—Forestry Assistant 3—Chief Rangers 6—Deputy Chief Rangers	Georgian Bay W. . . Georgian Bay E. . . Georgian Bay S. . .	Parry Sound Powassan Dorset
Algonquin	3,522,000	Pembroke	1—District Forester 1—Forestry Assistant 2—Chief Rangers 6—Deputy Chief Rangers	Algonquin North . . Algonquin South . .	Pembroke Brule Lake
Trent	3,513,000	Tweed . . .	1—District Forester 1—Forestry Assistant 2—Chief Rangers 4—Deputy Chief Rangers	Trent Madawaska	Bancroft Dacre

The average daily force including the Chief and Deputy Chief Rangers, was as follows: April, 57; May, 552; June, 955; July, 989; August, 976; September, 710; October, 132. The largest number of men on duty at any one time, including 149 Chief and Deputy Chief Rangers, was 995.

NUMBER OF MEN ON DUTY INCLUDING CHIEF AND DEPUTY CHIEF RANGERS

	1926	1925	1924	1923	1922	1921
April 1st.....	19	24	22	4	7	7
April 15th.....	42	62	60	9	21	19
May 1st.....	168	360	215	205	144	59
May 15th.....	549	648	525	699	595	568
June 1st.....	896	822	756	1,104	1,002	962
June 15th.....	966	842	810	1,166	1,052	1,014
July 1st.....	982	847	812	1,198	1,065	1,022
July 15th.....	992	848	813	1,257	1,054	1,036
August 1st.....	987	845	806	1,220	1,044	1,029
August 15th.....	983	841	792	1,223	1,040	1,034
September 1st.....	918	835	745	1,115	980	977
September 15th.....	798	806	626	968	545	533
October 1st.....	257	245	148	291	101	78
October 15th.....	129	82	47	111	44	30
October 31st.....	44					

(3) *Expenditures*

The total expenditure for the year was \$1,072,544.44, less \$80,000 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Fire Protection at \$992,544.44. The amount of fire tax collected for the year was \$303,308.15.

CLASSIFICATION OF EXPENDITURE

Item	1926	1925	1924	1923	1922	1921	1920
Pay roll.....	\$664,260 69	\$615,811 09	\$480,481 98	\$535,810 35	\$417,023 88	\$433,463 02	\$398,919 61
Equipment.....	101,981 12	130,353 42	139,894 00	127,186 92	44,504 49	28,384 40	22,287 83
Expendable equipment.....	6,406 00	4,338 76	4,646 75	5,869 55	3,048 16	19,505 86	16,589 99
Travel (inspection).....	29,065 24	33,649 18	32,797 35	31,436 73	23,088 33	21,034 95	17,495 93
Improvement work.....	19,097 63	225,723 85	61,427 30	54,876 42	40,999 77	3,621 06	1,591 01
Extra fire fighting.....	34,728 85	67,023 32	16,450 78	143,508 13	40,969 67	65,267 79	41,491 24
Express, postage, etc.....	30,105 86	39,472 70	33,818 69	28,083 20	9,561 17	7,926 65	5,401 02
Air operations.....	.....	.....	.....	86,404 71	23,437 84	.....	.....
Maintenance.....	95,931 36	98,520 56	28,877 18	7,419 24	17,670 45	.....	.....
Miscellany.....	17,327 48	11,964 07	8,921 53	15,328 44	23,598 77	31,331 01	2,331 08
Gasoline and oil.....	67,720 04	26,924 17	40,527 77	7,485 69	.....	.....	.....
Rent.....	5,920 17	7,528 62	7,206 91	5,251 41	.....	.....	.....
Brush-burning.....	.....	.....	.....	229 00	.....	.....	.....
Advertising.....	.....	.....	.....	14,066 45	.....	.....	.....
Totals.....	*\$1,072,544 44	*\$1,261,309 74	\$855,050 24	\$1,062,956 24	\$643,902 63	\$610,534 74	\$506,107 71

*Of this total \$80,000 was transferred to a charge against Forest Ranging to cover air operations in connection with that work.

BY SIZE

[illegible]

CLASSIFICATION OF AREA BURNED OVER
BY MONTH

INSPECTORATE	April		May		June		July		August		September		October		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	.....	.....	856	4.0	503	2.4	14,577	68.9	5,234	24.7	.....	.....	.....	.....	21,170	.....
Western.....	433	2.9	13,898	92.1	221	1.5	165	1.1	368	2.4	.....	.....	.....	.....	15,085	.....
Oba.....	.....	.....	1,435	17.7	1	.....	3,003	37.0	3,668	45.2	3	0.1	.....	.....	8,110	.....
Cochrane.....	.....	.....	896	10.1	5,743	65.1	1,055	12.0	1,134	12.8	.....	.....	.....	.....	8,828	.....
North Bay.....	.....	.....	1,795	34.0	2,228	42.2	8	0.2	1,241	23.5	7	0.1	.....	.....	5,279	.....
Sudbury.....	1	.....	1,164	20.2	2,713	47.1	37	0.7	1,845	32.0	1	.....	2	.....	5,763	.....
Soo.....	.....	.....	16,801	94.4	14	0.1	43	0.3	932	5.2	2	.....	.....	.....	17,792	.....
Georgian Bay.....	.....	.....	1,276	87.3	43	2.9	94	6.4	45	3.1	4	0.3	.....	.....	1,462	.....
Algonquin.....	1	0.1	1,236	97.2	13	1.0	15	1.2	4	0.3	3	0.2	.....	.....	1,272	.....
Trent.....	.....	.....	3,563	98.6	32	0.9	14	0.4	1	.....	1	.....	2	0.1	3,613	.....
Totals.....	435	0.5	42,920	48.6	11,511	13.0	19,011	21.5	14,472	16.4	21	.....	4	.....	88,374	.....

CLASSIFICATION OF AREA BURNED OVER

BY ORIGIN

Inspectorate	Settlers		Campers		Railways		Lightning		Logging Operations		Smokers		Road Construction		Miscellaneous		Unknown		Totals
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres
Hudson.....	8	.....	1,396	6.6	1,935	9.2	13,634	64.4	700	3.3	.....	.....	340	2.3	127	0.8	3,497	16.5	21,170
Western.....	194	1.3	337	2.2	648	4.3	212	1.4	482	3.2	.....	.....	.....	.....	.....	.....	12,745	84.5	15,085
Oba.....	292	3.6	7,689	94.8	40	0.5	18	0.3	3	.....	3	.....	.....	.....	.....	.....	65	0.8	8,110
Cochrane.....	876	9.9	1,721	19.5	3	.....	.....	.....	548	6.2	5	0.1	239	2.7	4	0.1	5,432	61.5	8,828
North Bay.....	1,456	27.6	685	13.0	277	5.3	103	2.0	761	14.4	1,005	19.0	28	0.5	22	0.4	942	17.8	5,279
Sudbury.....	333	6.1	734	12.7	251	4.4	.....	.....	294	5.1	2,737	47.5	.....	.....	555	9.6	839	14.6	5,763
Soos.....	955	5.4	7,406	41.6	122	0.7	415	2.3	8,738	49.1	26	0.2	126	0.7	4	.....	.....	.....	17,792
Georgian Bay.....	355	24.3	414	28.3	47	3.2	.....	.....	76	5.2	128	8.7	3	0.2	1	0.1	438	30.0	1,462
Algonquin.....	459	36.1	19	1.5	497	39.1	15	1.2	.....	.....	.....	.....	.....	.....	21	1.6	261	20.5	1,272
Trent.....	1,513	41.9	301	8.3	104	2.9	2	0.1	5	0.1	13	0.4	.....	.....	208	5.7	1,467	40.6	3,613
Totals.....	6,461	7.3	20,702	23.4	3,924	4.5	14,399	16.3	11,607	13.1	3,917	4.4	736	0.8	942	1.1	25,686	29.1	88,374

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS

RAILWAY	1926	1925	1924	1923	1922	1921
Canadian National Railways (exclusive of northern line).....	1.7	2.4	3.3	6.2	*3.2	*3.7
Canadian Pacific Railway.....	3.5	2.4	2.0	5.3	2.7	3.9
Canadian National Railways (northern trans-continental line only).....	1.0	0.3	0.5	2.0	2.4	1.8
Temiskaming and Northern Ontario Railway.....	1.9	1.1	3.7	7.3	7.3	6.3
Algoma Eastern Railway.....	.....	9.4	8.2	1.1	4.5	5.9
Algoma Central and Hudson Bay Railway.....	3.3	6.1	4.5	3.0	4.2	0.6
Nipissing Central Railway.....	.....	.....	.....	.....	.....	.....
Miscellaneous Private Railways.....	2.2	7.7	.....	.....	.....	.....
	2.2	2.4	2.7	4.9	3.3	3.7

*Former C.N.R. and G.T.R. figures combined.

RAILWAY	Per cent. of Total Number of Railway Fires						
	1926	1925	1924	1923	1922	1921	1920
Canadian National Railways (exclusive of northern line).....	29.7	38.3	50.3	45.9	*36.1	*47.9	*36.4
Canadian Pacific Railway.....	46.6	29.7	21.9	32.5	25.3	29.8	27.9
Canadian National Railways (northern trans-continental line only).....	6.8	1.6	3.0	7.6	13.3	7.9	16.4
Temiskaming and Northern Ontario Railway.....	5.9	3.1	8.8	9.6	14.5	10.6	9.9
Algoma Eastern Railway.....	.....	6.2	5.1	0.4	2.4	2.8	5.0
Algoma Central and Hudson Bay Railway.....	9.3	15.6	10.9	4.0	8.4	1.0	4.4
Nipissing Central Railway.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous Private Railways.....	1.7	5.5	.....	.....	.....	.....	.....
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Former C.N.R. and G.T.R. figures combined.

CLASSIFICATION OF FOREST AREAS BURNED OVER

INSPECTORATE	Number of fires	Timber land, mainly coniferous, i.e., softwood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
Hudson.....	73	924	.....	548	4	7,986	4,795	6,903	.....	21,170
Western.....	127	2,485	.....	1,542	6,420	720	869	2,731	318	15,085
Oba.....	53	3,113	.....	2,014	.....	2,352	.....	80	551	8,110
Cochrane.....	111	1,223	.....	3,165	636	1,904	82	581	1,237	8,828
North Bay.....	174	154	2	572	747	386	1,816	1,227	375	5,279
Sudbury.....	255	221	15	354	25	1,311	1,464	1,434	939	5,763
Soo.....	95	2,049	2,377	4,586	883	2,835	321	3,958	783	17,792
Georgian Bay.....	74	3	.....	33	307	60	321	639	99	1,462
Algonquin.....	68	.....	.....	10	130	19	452	149	512	1,272
Trent.....	80	94	74	42	226	.....	1,183	1,560	434	3,613
Totals.....	1,110	10,266	2,468	12,866	9,378	17,583	11,303	19,262	5,248	88,374
1925 totals.....	1,149	4,634	5,555	13,555	21,588	22,391	34,164	68,414	19,242	189,542
1924 ".....	851	24,067	6,592	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 ".....	1,343	567,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
1922 ".....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
1921 ".....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 ".....	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851

CLASSIFICATION OF LAND BURNED OVER

INSPECTORATE	Fires burning on one class of land only						Fires burning on both Crown and private land										
	Crown land			Private land			Originating on Crown land				Originating on private land				Totals		
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Crown land area in acres	Per cent.	Private land area in acres	Per cent.	No. of fires	Crown land area in acres	Per cent.			Private land area in acres
Hudson.....	55	19,232	90.8	15	34	0.2	1	150	1.0	50	.....	3	1,904	9.0	.....	73	21,170
Western.....	53	9,466	62.8	70	4,927	32.7	13	690	7.8	950	.....	3	398	2.6	94	127	15,085
Oba.....	36	7,824	96.5	17	286	3.5	16	1	.....	45	.....	.....	.....	.....	.....	53	8,110
Cochrane.....	26	2,515	28.5	82	4,673	52.9	3	3	0.1	8	.....	.....	.....	.....	.....	111	8,828
North Bay.....	65	1,909	36.2	91	2,735	51.8	3	3	0.1	8	.....	2	204	3.9	385	174	5,279
Sudbury.....	60	2,835	49.2	179	1,639	28.5	3	3	0.1	8	.....	13	711	12.3	567	255	5,763
Soo.....	43	14,941	84.0	51	2,381	13.4	.....	.....	.....	.....	.....	1	400	2.2	70	95	17,792
Georgian Bay.....	28	398	27.2	45	704	48.2	1	260	17.8	100	.....	.....	.....	.....	.....	74	1,462
Algonquin.....	34	558	43.9	30	449	35.3	1	18	1.4	2	.....	3	68	5.3	177	68	1,272
Trent.....	33	1,334	36.9	44	2,097	58.0	2	65	1.8	110	.....	1	4	0.1	3	80	3,613
Totals.....	433	61,012	69.0	624	19,925	22.6	27	1,187	1.3	1,265	1.4	26	3,689	4.2	1,296	1,110	88,374

(5) *Permits*

The number of permits issued during the season for burning brush and debris was almost two thousand in excess of the number issued the year previous, but the acreage covered by these was over a thousand acres less. Contrary to the three previous seasons, however, approximately ninety per cent. of the permits issued were used, the weather throughout most of the spring and summer being almost ideal for burning.

In addition to the acreage of railway right-of-way burned off and included in the total acreage in the accompanying table the burning of old ties and debris was carried out along nearly 600 miles of line.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1926	1925	1924	1923	1922	1921	1920
Red Lake.....	31	99	70	28	23		1
C.G.R. West.....	26						
C.G.R. Central.....			1				
Kenora.....	179	3	128	362	180	128	53
Rainy River.....	31	19	16	216	39	3	5
Thunder Bay.....	264	235	100	139	59		
Nipigon.....							
C.G.R. East.....	51	95	36	18			
Hearst.....	1,804	1,656	1,011	1,000	1,774	1,082	756
Longlac.....	2			50			
Oba.....	29	11	16				
Franz.....	5	10					
Kapuskasing.....	1,022	1,187	668	531	587	209	
Smoky Falls.....	76						
Cochrane.....	2,506	2,486	1,815	1,480	2,497	1,503	1,982
Abitibi.....	65	157	2	2	61	2	8
Matheson.....	1,603	1,515	1,275	1,122	2,126	1,599	1,887
Timmins.....	1,407	1,212	580	406	754	407	193
New Liskeard.....	836	637	408	361		916	1,169
A.C.R.....	97	82	18	10			
Blind River.....	164	126	100	36	6		
Mississagi South.....							
Foleyet West.....	58	3	34	11			
Foleyet East.....	175	169	102	1			25
Mississagi West.....	67	20	15	1			
Mississagi East.....	18	12	9				5
Webbwood.....	183	162	119	25	16	21	
Sudbury North.....	16	36	173				
Sudbury South.....	580	411	149	36			
Temagami West.....	14	19					
Temagami North.....	294	253	200		387	24	10
Temagami East.....	395	174	86	11	48	15	14
North Bay.....	971	691	360	61	46	42	31
Georgian Bay West.....	83	100					
Georgian Bay East.....	207	159					1
Algonquin North.....	14	33	29				
Algonquin South.....	103	84	58			3	4
Trent.....	31	106					
Madawaska.....	59		24			12	10
Totals.....	13,466	11,962	7,602	5,907	8,603	5,966	6,154

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage Covered by Permits						
	1926	1925	1924	1923	1922	1921	1920
Red Lake.....	15}	416	215	95	26	.....	1
C.G.R. West.....	63}						
C.G.R. Central.....	.....	.....	1	.....	.....	.....	.....
Kenora.....	442	2	325	35,006	624	637	284
Rainy River.....	2,144	174	57	1,374	331	18	23
Thunder Bay.....	993	1,029	463	1,081	1,251	.....	.....
Nipigon.....	.....	.....	.....	.....	.....	.....	.....
C.G.R. East.....	35	28	25	53	.....	.....	.....
Hearst.....	3,435	3,721	2,311	2,335	3,837	2,124	1,478
Longlac.....	.....	.....	.....	64	.....	.....	.....
Oba.....	28	1	60	.....	.....	.....	.....
Franz.....	.....	1	.....	.....	.....	.....	.....
Kapuskasing.....	4,106}	4,222	2,351	2,126	2,017	1,731	.....
Smoky Falls.....	205}						
Cochrane.....	5,623	4,462	4,010	4,348	8,108	4,652	4,984
Abitibi.....	213	426	.....	1	968	13	72
Matheson.....	4,884	5,211	4,573	5,027	7,613	5,442	5,427
Timmins.....	2,354	2,064	1,421	918	2,591	988	424
New Liskeard.....	2,093	2,154	1,345	1,160	.....	7,726	9,768
A.C.R.....	408	1,257	100	36	.....	.....	.....
Blind River.....	1,041	1,119	619	294	67	.....	.....
Mississagi South.....	.....	.....	.....	.....	.....	.....	.....
Foleyet West.....	1,008	25	2,959	52	.....	}	128
Foleyet East.....	1,613	3,152	3,402	5	.....	
Mississagi West.....	2,208	2,555	81	408	.....	.....	3
Mississagi East.....	2,843	4,741	2	.....	.....	.....
Webbwood.....	4,125	2,768	2,009	81	66	101	.....
Sudbury North.....	137	293	425}	187	.....	.....	.....
Sudbury South.....	2,089	1,957	6,900}		.....	.....	.....
Temagami West.....	27	6	.....	.....	.....	.....	.....
Temagami North.....	319	1,197	303	.....	1,657	129	18
Temagami East.....	458	819	172	41	196	25	25
North Bay.....	1,830	1,384	518	92	103	74	104
Georgian Bay West.....	201	742	.....	.....	.....	.....	.....
Georgian Bay East.....	558	418	.....	.....	.....	.....	2
Algonquin North.....	148	377	719	.....	.....	.....	.....
Algonquin South.....	199	121	599	.....	.....	5	11
Trent.....	111}	326	60	.....	.....	13	15
Madawaska.....	86}						
Totals.....	45,988	47,168	36,025	54,784	29,455	23,678	22,767

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1926	1925	1924	1923	1922	1921	1920
April.....	100	451	127	.....	.....	.....	.....
May.....	3,580	2,185	849	2,131	1,992	1,154	1,003
June.....	3,341	2,273	3,614	711	3,034	3,085	2,011
July.....	2,643	2,172	1,388	1,314	1,502	364	891
August.....	2,065	2,484	1,093	1,077	1,580	1,329	1,620
September.....	1,672	2,367	528	566	495	34	629
October.....	65	30	3	108	.....	.....	.....
Totals.....	13,466	11,962	7,602	5,907	8,603	5,966	6,154

MONTH	Acreage Covered by Permits		
	1926	1925	1924
April.....	3,686	7,981	4,956
May.....	13,484	12,397	2,812
June.....	12,020	5,851	10,188
July.....	7,521	7,685	3,546
August.....	4,434	6,667	5,021
September.....	4,800	6,546	9,450
October.....	43	41	52
Totals.....	45,988	47,168	36,025

(6) *Equipment*

Of the major equipment purchased the portable fire fighting units and portable hand pumps were again the most important.

The greater part of the new equipment for the Hudson Inspectorate was used in the Red Lake mining area.

MAJOR EQUIPMENT PURCHASED AND IN USE

INSPECTORATE	Fire fighting units		Fire fighting hose (feet)		Portable hand pumps		Tents		Blankets (pairs)		Canoes		Small motor boats		Launches		Auto trucks		Railway motor cars		Velocipedes	
	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use	Purchased 1926	Total in use
Western.....	2	19	4,700	35,500	9	9	14	51	25	258	9	40	...	1	...	4	2	3	2	...	...	9
Oba.....	...	23	9,000	59,800	48	58	...	112	...	635	...	57	3	4	...	2	1	1	10	...	...	18
Cochrane.....	6	24	16,000	50,850	25	25	...	79	...	429	...	63	...	1	...	5	2	7	4	...	...	38
Soo.....	5	18	18,000	42,900	12	16	7	79	...	432	12	43	...	1	...	...	3	...	...	...	...	8
Sudbury.....	13	61	38,000	146,100	101	200	23	182	120	432	...	8	...	2	...	2	4	6	6	...	...	6
Georgian Bay.....	...	15	...	28,900	24	78	2	44	25	270½	3	43	...	1	...	2	4	4	...	...	...	4
Algonquin.....	...	10	...	18,900	20	62	...	56	25	366	7	52	...	1	...	2	2	4	...	...	...	7
Trent.....	...	6	5,000	18,000	35	77	4	22	100	190	...	22	...	...	2	...	...	...	3	...	...	1
North Bay.....	3	23	6,800	49,400	40	84	10	83	30	507	2	85	2	6	...	2	2	6	1	...	...	22
Hudson.....	26	44	36,000	71,800	89	92	52	78	250	372½	28	50	1	1	1	6	...	2	1	...	...	2
Totals.....	55	243	133,500	522,150	403	701	112	786	575	4,579	69	605	6	18	10	35	17	40	3	30	2	115

(7) Locomotive Inspection

Two men were again employed throughout the season on the inspection of fire protective appliances on locomotives operating within the Fire Districts of the Province.

A total of 1,742 locomotive inspections were made covering 805 locomotives operating on railway lines under the jurisdiction of the Board of Railway Commissioners for Canada and in addition 98 inspections were made of Temiskaming and Northern Ontario Railway locomotives and 18 inspections of logging locomotives, 1,858 inspections in all.

LOCOMOTIVE INSPECTION, 1926

Railway	Number inspected					Total No. Locomotives	Total number inspections										Inspections showing defects	Percentage defective						
	Times																							
	1	2	3	4	5 and over		1926	1926	1926	1925	1924	1923	1922	1921	1920	1926		1926	1925	1924	1923	1922	1921	1920
C.P.R.....	185	80	59	31	18	373		739		799	851	860	815	723	660	6	0.8	0.5	1.9	2.3	5.8	8.3	18.8	
C.N.R.....	159	97	51	57	44	408		962		988	1,001	856	*681	*740	*577	17	1.8	0.5	1.5	2.7	*3.5	*5.7	*6.4	
A.C. & H.B.R.....	12	4	.....	.....	.....	16		20		45	45	29	45	35	25		.....	.....	.....	.....	2.2	22.8	12.0
A.E.R.....	1	1	4	1	.....	6		18		21	15	15	22	28	26		.....	4.8	.....	6.6	.....	21.4	46.1
N.C.R.....	1	1	.....	.....	.....	2		3		3	8	.....	.....	.....	.....		.....	33.3	.....	.....	.....	.....	.....
Totals.....	357	183	114	89	62	805		1,742		1,856	1,920	1,760	1,563	1,526	1,288	23	1.3	0.6	1.6	2.5	4.6	8.3	12.8	

Average cost per inspection: 1926, \$1.91; 1925, \$1.78; 1924, \$1.80; 1923, \$1.88; 1922, \$1.61; 1921, \$1.70; 1920, \$1.86.
 *Former C.N.R. and G.T.R. figures combined.

(8) *Improvements*

The usual amount of work was carried out on trail and portage cutting, and a number of wooden lookout towers erected and cabins built. The construction of telephone lines was left until the end of the fire season, the principal lines not being completed until the end of November.

(9) *Air Patrol*

Aircraft were again used to supplement the organization for detection and in some districts suppression, the latter particularly in the Red Lake mining area where the country lends itself admirably to the use of seaplanes.

(10) *Fire Hazard Disposal*

During the season considerable progress was made in the disposal of brush and debris which constituted hazards to settlements in various parts of the Province. In the Clay Belt region particularly most satisfactory results were obtained in disposing of the greater portion of the enormous amount of settlers' slash which had been accumulating during the three previous years when conditions were such that burning was impossible. This work was all carried out through the co-operation of the ranging staff with the settlers.

In addition hazards around some of the northern towns were disposed of, chief among which were those at Pine Ridge, Gogama, Swastika, Kirkland Lake, Porquis Junction, Ansonville, Elk Lake, Cobalt, Latchford, at the Quebec boundary in Sargeant township and along the North Bay-Cobalt Road through the townships of Gladman, Lyman, Notman, Blyth and Merrick.

(11) *Weather Investigations*

The study of the relationship between relative humidity and fires was continued, the results of this study up to the present being most encouraging.

II.—AIR SERVICE

Introduction:

A great essential to the success of commercial flying, requiring time, patience, and careful organization, is the public confidence in and familiarity with aviation. During the three operating seasons of 1924, 1925, and 1926, the Flying Service of the Ontario Government has endeavoured in 8,875 flying hours to demonstrate the usefulness and value of aircraft as an improved method of observation for the better protection and conservation of Ontario's forest wealth, and the preparation of forest inventories. This endeavour has not been made in opposition to existing ground organizations or services, but as an adjunct to them, providing facilities under conditions with which they cannot cope. It may be said that primary reconnaissance and forest inventory work by air is now recognized as the fastest and most economical method of securing information over the large timbered and remote areas of our province.

Forest fire protection is a question of insurance and must be worked out on this basis. Therefore a vital factor, which has to be strictly adhered to, is economy in the first cost of aircraft and equipment and in the operation of such equipment. Thus far the Service has standardized flying boats of war time type. The first cost was very reasonable and the performance of such equipment certainly justified its use. The Service is to-day faced with the problem of

replacing the obsolescent types of aircraft with modern commercial design. Fortunately the development of aeronautics during the last four or five years enables efficient aircraft to be produced at a very much lower first and operating cost, and so the signs of to-day are hopeful. The principle obstacle to the extension of forest fire protection by aircraft is the high cost of flying. However, it is generally known that the higher cost of forest fire protection by air is amply justified when it is considered that in many of the districts of the province covered to-day by aircraft, the maintenance of a highly organized ground service would not be possible, and the alternative to protection by air is an imperfect system of extensive and lengthy canoe patrols.

Though much remains to be done, much progress has been made. Prospects are excellent for healthy growth of commercial flying and extension into the many new fields of government enterprise in the unsettled and remoter areas in speeding up the development of the unlimited possibilities of our natural resources, "Proving our pay load in Ontario's north."

This report deals with the progress of operating and reconditioning programmes of the Ontario Government Air Service for the year 1926. Worthy of mention is the fact that Air Regulations 1920, which cover in detail the air law of Canada and provide a complete set of rules directly under the administration and direction of the Minister of National Defence, Ottawa, have at all times been adhered to. These regulations provide, in brief, for the registration, certification for airworthiness and marking of aircraft; the licensing of air harbours; the licensing of personnel; both ground and flying; the use of lights for night flying; signals for communication between the ground and aircraft in flight; the rules of the air necessary for the avoidance of collisions, and for traffic, both on the ground and in the air, in the vicinity of air harbours; rules for the prevention of flying, dangerous either to the occupants of aircraft or to third parties; international flying, including the entry and export of goods by air and the emigration and immigration of persons by air; and general provisions in regard to use of wireless, carriage of mail by air, and other phases of operation.

Organization:

The organization of the Provincial Air Service is designed to meet the requirements of the two outstanding phases of the year's work—flying operations and reconditioning.

1. *Flying Operations.*—For this, the most important phase of the year's work, the organization of the Service was altered in a few respects from that of former years, in order to allow more flexible control within the organization and to render better service to the fire protection forces. The former object was attained by the assumption by the Director of the duties formerly delegated to a General Superintendent, and by the establishment of a new Central Operating District, under the administration of a station superintendent at Orient Bay, in addition to the eastern and western districts of former years. The latter object was attained by the establishment of new bases at Bisco, Longlac and Pine Ridge. Bisco Station (covering parts of Sudbury and Como patrols) was established to place a machine subject to the direct requisition of the suppression forces of the northern part of the Mississagi Reserve.

Unfortunately it was found that the advantages arising from operation of Bisco Station were more than offset by the disadvantages under which such operations had to be carried out. The peculiar atmospheric conditions in this vicinity, together with the floating logs and mill debris, render taking-off and landing somewhat more hazardous than is desirable. Further, charts showing

requisitioned flying from the various bases reveal the fact that coverage of the Bisco area was required at almost exactly the same time as Sudbury area. In view of the foregoing, the abandonment of this base is recommended.

The establishment of a base at Longlac gave to the suppression forces in that area a machine subject to immediate requisition, in addition to providing facilities for a forest-type sketching programme. The base at Pine Ridge was designed to provide for a new fire hazard, attendant upon the Red Lake Gold Rush.

The eastern operating district consisted of five bases and six machines. At Sudbury were the District Headquarters and machines OK and ON. At Bisco was OP, at Como OH, at Temagami OR, and at Remi Lake OT. This district comprised that area lying from the Quebec boundary to a line drawn roughly from Spanish on the C.P.R. Sault line, through Nicholson on the C.P.R. Main line, on to Mattice on the C.N.R. Northern line, and from Georgian Bay to the Northern timber limit.

In the Central District were three bases and five machines; OB, OI, OJ were at Orient Bay, the District Headquarters; OM was at Oba Lake and OS at Longlac. In connection with Orient Bay operations, Port Arthur was used as a sub-base for a part of the flying season. This district extends west from the Eastern District to a line roughly drawn from Lac des Mille Lacs to Allanwater on the C.N.R. Northern line.

The Western District extended from the Central to the Manitoba boundary. The District was served by four bases and five machines with headquarters and machines OQ and OE at Sioux Lookout. Machine OF was at Pine Ridge, machine OG at Kenora, OL at Fort Francis.

Sault Ste Marie, the general headquarters for summer reconditioning, for office and accounting administration, and for flying instruction, was also used as an operating base for forest protection. This station was in the charge of a station superintendent. Algoma District was patrolled and machine OA was used.

2. *Reconditioning.*—While reconditioning of motors and, when necessary, of disabled machines was carried on throughout the operating season by a staff which was entirely devoted to such work, the chief activity in this connection occurred in the winter season, when the services of the entire flying personnel were also used.

For such reconditioning the organization required was very simple, since the work undertaken was all of the same nature, and only one base was kept open. The station superintendents of summer operations took the positions of Superintendent in Charge of Reconditioning and Superintendents of Aircraft Shop and Engine shop respectively. The pilots and mechanics of summer operations were utilized in the work of overhauling machines and motors in preparation for flying operations. (In this connection see Recommendations).

In addition to the reconditioning of aircraft and engines, the personnel and plant at the reconditioning base were used for the construction of various items of equipment for the Ontario Forestry Branch. Four large motor boats were thus built, one 36-foot boat, two 24-foot boats, and one 20-foot boat. Worthy of note also was the building of several collapsible canoes of our own design, in addition to the standard 14-foot type. The former canoes have proved so successful in use that the R.C.A.F. have ordered the mold and one model, to be used in connection with their patrol operations.

The Flying Operations of 1926:

The operating season of 1926 extended over a period of 188 days during which time the Service flew 3,539.22 hours; this compares with the season of 1925 which extended over a period of 206 days during which time 2,738.37 hours were flown.

Detection:

The requisitions for fire detection are controlled entirely by the District Foresters and patrols are carried out in accordance with their instructions. The decision as to whether the fire hazard necessitates patrols rests entirely with them.

As in the operating seasons 1924 and 1925, the principal outlet for flying in Ontario has been detection, the original and essential reason for the formation of the Service. With a few exceptions the entire forest area of Northern Ontario lying west and north of Lake Superior and the French River, an area of approximately 800 miles from east to west and 400 miles from north to south, was periodically patrolled by the machines of this Service during all seasons of fire hazard. In this operation 1,957.44 hours or 55.4 per cent. of the total time were flown, as compared with 1,440.40 hours (52.5 per cent. of total time) flown for detection last year. The fire patrols covered 4,707.968 square miles, or 3,013,089,522 acres. The effectiveness of this protection is shown by the fact that 972 fires were reported by the air patrol, many of them small and easily controllable when discovered.

Suppression:

The use of aircraft for fire suppression purposes is rapidly increasing as is shown by the 640.17 hours (18.1 per cent. of the total flying time) flown for this purpose in 1926, as compared with 155.45 hours (5.7 per cent. of total time) in 1925. Most of this flying was used in the transportation of fire fighters and equipment to fires when speed was essential and ordinary methods of transportation were slow. This was specially demonstrated in the newly-organized Red Lake District, where many of the water routes were uncharted or unmapped and transportation off the beaten track was very uncertain and entirely too laborious. A further use of aircraft to aid the suppression forces was the transportation of men and equipment to various strategical outposts in readiness to cope with fires in the adjacent areas. By this means the machines were kept partly employed in times of fire patrol inactivity, and considerable time and labour were saved the suppression forces.

Worthy of mention is a series of suppression flights which started on July 31st as follows: The machine, while on the requisition of suppression transporting equipment from Bear Lake to Longlac on July 31st at 7.30 a.m. detected a fire which merited instant attention, a fire of Class "D" classification. It is noteworthy that on this flight the machine also located Chief Sterret in a canoe on Bluffy Lake and landed. The fire was reported to him direct at 8.05 a.m. The machine then returned to Pine Ridge for equipment and men, thence to Bear Lake transporting Deputy Ranger and equipment to the scene of the fire, landing at 10.30 a.m. A second flight was carried out carrying men and equipment, landing them at the fire at 2 p.m. of the same day. In the suppression of this fire 35 flights were made to the fire, totalling 48.25 hours actual flying time. The fire was pronounced out on the 10th of August, having burned over approximately 3,200 acres. The Provincial Air Service carried 10,315 pounds of men and equipment. Of this, 6,420 pounds were fire fighting equip-

ment, camp equipment and food. Of this 6,420 pounds, 3,700 pounds were carried out again. Twenty-seven men were employed in the fighting of this fire. All of these men were flown out and again placed at their respective positions by August 11th. The fire, which was inaccessible by canoe, was handled entirely by aircraft. No man approached it or left it by ground.

Sketching:

Machines of the Service were again used in the operating season of 1926 in a programme of timber type sketching, for forest inventory purposes; although fewer hours were flown, 142.56 hours (4 per cent. of total flying time) were used for sketching this year as compared with 244.42 hours (8.9 per cent. of total time) used last year. A part of this decrease may be explained by the location of the operating bases and the organization of this work, which was so arranged that bases were closer to the areas to be surveyed. During the season 3,300 square miles in the vicinity of Sioux Lookout and Oba Lake were sketched.

Photography:

The success of oblique photography in providing reliable maps of unsurveyed areas has brought about the expansion of the photographic survey programme of the Ontario Forestry Branch. During 1926 the machines of the Service were employed on photographic work for 99.25 hours, or 2.8 per cent. of the total time flown by the Service. This is almost double the time flown for this purpose last year—53.15 hours or 1.9 per cent. of the season's flying time. Approximately 3,500 square miles in the vicinity of Temagami, Sudbury, and Oba Lake were surveyed by oblique axis photography, while about 50 square miles were photographed vertically. This latter work was in connection with publicity pictures for the Department.

Sketching and Photographic Areas, 1926:

Square miles sketched from the air.....	3,300
Square miles photographed from the air—(1) vertical.....	50
Square miles photographed from the air—(2) oblique.....	3,500
	<hr/>
	3,550
Forest fires detected from the air.....	972

Forced Landings:

1. *Service Flying.*—A reduction in the flying time spent in forced landings is shown for 1926, 29.25 hours (.8 per cent. of the total time) having been flown this year as compared with 36.04 hours (1.3 per cent. of the total time) in 1925. When a patrol cannot be completed within the required time due to the forced landing of a machine, the time spent in returning to the operating base after repairs is not properly chargeable to detection or suppression, but rather to service flying. Since it is desirable to decrease the proportion of service flying to requisitioned flying, the reduction of time spent in forced landing speaks well for the efficiency of the personnel and machines.

2. *Ferrying.*—234.36 hours (6.6 per cent. of the total time for 1926) as against 330.41 hours (12.0 per cent. of the total time for 1925) were flown in transporting machines to and from their operating bases. Of course this flying is quite essential to any operations and would be paid for by the Forestry Branch if flying were purchased from a commercial company. Therefore any reduction of non-requisitioned flying is desirable and indicates increased efficiency in the Service.

Special Transportation—Semi Commercial Flying.

Aviation can and is helping in the development of the great remote areas north of the steel by providing means of communication, fast, reliable, and relatively economical when compared with the existing primitive and standard means of transportation, the canoe. During the operating season of 1926 194.50 hours (5.5 per cent. of the total flying time) were carried out for purposes other than Forestry Branch requirements.

Early in June instructions were received by wire from the Deputy Minister of Forestry to send a machine to Haliburton to search for two prospectors who were lost in that area. The machine was dispatched from Sault Ste Marie and arrived at Parry Sound the same day, in spite of the fact that it rained continually throughout the day. A series of flights was carried out in this connection.

In the latter half of June flights were carried out for the payment of Indian Treaty in the distant areas of Patricia, Northern Ontario, adjacent to James Bay, as in the seasons of 1924 and 1925.

A further series of flights was made late in June to search for the bodies of children who were drowned in a boating accident in St. Mary's River, Sault Ste Marie.

In July an urgent request from the Department requisitioned a machine at the Sudbury base to proceed immediately to Balsam Lake and assist in any way possible in locating the bodies of the boys who lost their lives in this most unfortunate accident. The machine remained at Balsam Lake for a period of a week, carrying out orders with regard to the searching parties.

In August a machine from the Sudbury operating base conducted a search for a party lost on the Manitoulin Island.

Toward the end of the operating season, October and November, a machine was requisitioned to participate in flights for Patricia Airways, Limited, the purpose to continue transportation to and communication with the Red Lake mining areas, due to the fact that the only machine of Patricia Airways was out of commission on account of engine overhaul.

The number of requisitions for aircraft assistance that have been received by the Department from the public bodies in cases of urgency as demonstrated during the past year, very clearly indicate the increasing confidence of the public at large in the utility of aircraft.

Instruction:

The Service has devoted considerable time, amounting to 117.50 hours or 3.3 per cent. of the total hours flying, to flying instruction of junior personnel in the last season. This also is designed to provide for the Service a flying staff trained from the ground up in the particular requirements of forest protection work. Moreover, the Province of Ontario and the Dominion of Canada are served by the training of men for peace time commercial flying and national defence in time of war. Not least of the benefits is the encouraging of the mechanical personnel by this policy of recognizing valuable service and ability by promotion to flying position. Following is given the report of the officer in charge of flying instruction.

Summary of Flying Instruction, 1926:

Four new pilots were given flying instruction in the handling of an H.S. 2 L. flying boat. They were passed in the Senior Category of pilots for 1926 operations.

One junior pilot was graduated from the air engineer ranks and was passed for service as Junior Pilot B.

Five air engineers were given flying instruction and each successfully carried out a series of solo practice flights at Sault Ste. Marie. Four of these engineer pilots received the R.C.A.F. refresher course on light machines at Camp Borden and satisfactorily carried out solo flights on this type.

One senior pilot was tested and turned down as not being up to the standard required by the Service.

Two engineers were given preliminary flying instruction and are not being continued with.

One junior pilot A was given preliminary flying instruction and posted as a pilot helper on operations.

One engineer (applicant pilot) received instruction and is recommended for further instruction in 1927.

One observer (applicant pilot) was given trial flights and recommended for instruction in 1927.

Operation Statistics:

The increased activity in almost every phase of the season's operations is reflected in the statistical summary given below. The total number of flights, average number of flights per day, average altitude, number of miles flown, and weights carried, all show increases. The average duration of flight is $1.46\frac{1}{2}$ hours as compared with 2.06 hours in 1925, the decrease caused partly by the greater number of short suppression and instructional flights, and partly by the tendency toward a policy of shorter patrols and quicker reporting of fires.

	1926	1925
<i>Flights:</i>		
Total number of flights.....	1,994	1,312
Average duration of flight.....	$1.46\frac{1}{2}$ hrs.	2.06 hrs.
Average miles flown per flight.....	115	129
Average altitude.....	3,197 ft.	1,990 ft.
Average number of flights per day.....	10.6	6.3
Average number of flights per day per machine on days machines employed.....	2.11	.....
Number of miles flown.....	230,991	165,835
<i>Load:</i>		
Total load—weight carried.....	3,249,372	2,364,275
Total operating load carried.....	2,589,959	1,810,735
Effective or pay load carried.....	659,413	553,540
<i>Passengers Carried:</i>		
Total number of passengers carried.....	1,636	1,214
Average number of passengers per flight.....	.82	0.9
Average number of passengers per machine.....	102	71
Total number of passengers and personnel carried.....	5,624	3,938

Following are given the statistics of Service efficiency for 1926. It is to be noted that of the 2,651 possible machine days from the beginning of the season to the end, machines were unserviceable on only 117 days, as compared with 2,729 possible machine days in 1925 and machines unserviceable on 229 days; of the remaining 2,534 serviceable machine days, machines were employed on 944, available and idle on 793, and weather was unfit for flying on 797 days.

It must also be remembered that most of the days on which machines were unserviceable were days when weather was unfit for flying, so that necessary engine changes were cared for with little interruption to service. Of 821 patrols requisitioned 97.81 per cent. were successfully carried out, as compared with 97.3 per cent. of only 555 requisitions in 1925.

	1926	1925
Machine days, one machine for one day, machines employed.....	944	763
Fair weather machine days, machines available and idle.....	793	932
Machine days, machines available and weather unfit for flying....	797	805
Total number machine days supplied by the Service.....	2,534	2,500
Number of times one machine unserviceable one day.....	117	229
Total possible machine days in season.....	2,651	2,729
Number of patrols requisitioned.....	821	555
Number of times machine unable to complete patrol account machine trouble.....	20	15
Machine patrol efficiency.....	97.55	97.3
Service patrol efficiency.....	97.81	

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATION

	1926		1925	
		Per cent.		Per cent.
Fire detection.....	1,957.44	55.4	1,440.40	52.5
Suppression.....	640.17	18.1	155.45	5.7
Sketching.....	142.56	4.0	244.42	8.9
Photography.....	99.25	2.8	53.15	1.9
Special transportation (semi commercial).....	194.50	5.5	197.40	7.2
Observers' instruction.....	17.14	.5	26.50	.9
Forced landings.....	29.25	.8	36.04	1.3
Ferrying (to and from operating bases).....	234.36	6.6	330.41	12.0
Operation, administration, inspection.....	62.10	1.8	62.05	2.2
Flying instruction.....	117.50	3.3	55.48	2.0
Test.....	42.55	1.2	47.27	1.7

EFFICIENCY PROVINCIAL AIR SERVICE OPERATIONS, 1926

MONTH	Requisitioned	Attempted	Completed	Completed same day but delayed	Not completed same day	Percentage completed uninterrupted	Percentage completed same day but delayed	Mechanical causes	Weather
May.....	117	115	104	3	10	88.88	2.56	3	7
June.....	104	104	97	1	6	93.27	.96	1	5
July.....	217	217	202	3	12	93.08	1.38	5	7
August.....	272	272	239	4	29	87.87	1.47	8	21
September.....	96	96	83	1	12	86.46	1.04	3	9
October.....	5	14	14	..	1	93.33	6.67	..	1
	821	818	739	12	70	90.00	1.46	20	50

OPERATIONS STATISTICS, 1926

MACHINES	No. of days serviceable	No. of days unserviceable	Machine days machine employed	Clear days machine available and idle	Available but weather unfit	Unable to complete patrol mechanical	Requisitions	Patrols abandoned account weather
Albatross.....	183	4	110	32	41	2	41	2
Buzzard.....	139	6	56	58	25	1	30	3
Eagle.....	75	9	31	28	16	2	30	1
Falcon.....	152	10	85	34	33	2	113	1
Gull.....	140	10	57	50	33	....	52	5
Heron.....	152	4	57	28	67	2	42	5
Ibis.....	162	4	61	52	49	....	61	2
Jackdaw.....	158	5	50	56	52	1	45	5
Kestrel.....	161	2	60	58	43	1	45	3
Loon.....	145	9	39	56	50	2	36	2
Mallard.....	161	4	57	37	67	....	79	3
Nightingale.....	161	4	43	71	47	2	41	3
Owl.....	21	7	1	10	10	....	....	....
Pigeon.....	157	6	49	56	52	....	40	....
Quail.....	172	11	60	60	52	2	56	6
Raven.....	151	10	58	32	61	1	56	3
Snipe.....	154	12	52	41	61	2	47	7
Thrush.....	90	....	18	34	38	....	7	2
	2,534	117	944	793	797	20	821	53

Machine efficiency, 97.55. Service efficiency, 97.81.

NOTE.—For the purpose of obtaining an accurate average the machine Owl has been eliminated, and the machines Eagle and Thrush shown as one, as Thrush carried on where Eagle left off.

Damage to Aircraft:

I regret I have to report three mishaps during the year involving the loss of three machines, but no loss of life or severe injury to personnel. The motors and all equipment were salvaged from two of these machines, which greatly reduced the loss.

In July machine Owl, a Loening Air Yacht, was crashed at Sudbury by a pilot having no experience with the operation of such type, a monoplane, and operating in disobedience to Provincial Air Service orders and Air Regulations 1920. The pilot in question, after a Court of Enquiry by the officials of the Department of National Defence, had his license suspended for a period of six months. Slight injuries were suffered by the pilot and his unauthorized passengers.

In August machine Eagle, proceeding to the assistance of machine Falcon in the Red Lake area, landed with necessary spare parts and in manoeuvring to take off for the return to Pine Ridge struck a large submerged rock. The hull was so critically injured that, after a careful survey of the entire situation, it was decided that the expense in connection with salvage would be greater than the purchase price of a new machine of this type. The engine and all parts, including rigging fittings, were salvaged and returned to the operating base at Sioux Lookout.

Machine Buzzard, returning to Sault Ste. Marie after the completion of the season's operations and when actually in sight of the city, was forced to land on Lake Superior, due to the fact that water condensation in the gravity tank made a mixture that did not function correctly in the Liberty engine.

The machine landed on the lake under normal weather conditions, although quite late in the evening. In fifteen or twenty minutes a severe storm swept across from the east and every endeavour which was made to beach the machine on the Canadian side was of no avail. The machine drifted out to rougher water and the pilot, realizing the difficulties he was in, hailed a freighter. In the rescue or attempt to tow the flying boat to safety, the bow of the freighter practically cut the machine in half, and it was necessary that the pilot and air engineer climb aboard the freighter, with no time to make a rescue or salvage of any of the equipment either of the boat or of their personal belongings.

Recommendations:

During the operations of the Provincial Air Service in the past three years, it has been the practice, and deemed advisable, to retain the services as far as possible of the pilot personnel throughout the winter months, though active flying operations cease with the fire hazard in the fall of the year. The chief reason for this is that it is necessary to ensure the services of an efficient staff of pilots, both skilled in the handling of a machine and experienced in the work and requirements of the Forestry Branch, for the succeeding fire hazard season.

With the exception of a few—the station superintendent in charge of the reconditioning programme, a station superintendent assisting in the Director's office at Toronto, and a few pilot mechanics who work in the engine section on engine overhaul—the pilots are employed as general helpers assisting where necessary in the hangar throughout the reconditioning period.

The service these pilots render cannot be considered as proportionate to the salary received during this period. Furthermore, the nature of their work and the consequent reversal of position in the Service as regards the mechanics, is not conducive to the maintenance of the high moral standard and efficiency that the Provincial Air Service demands.

It is therefore recommended that, instead of employing the pilot staff as at present, they be released during the winter months on a retaining fee. Should this policy be decided upon, it would mean the release of at least twelve pilots for a period of five months, and a saving of approximately 50 per cent. of their salaries.

Comparative Statistical Briefs:

COMPARATIVE STATISTICAL BRIEFS

	1924 hours	1925 hours	1926 hours
Flying time.....	2,597.00	2,739.52	3,539.22
<i>Greatest Weeks' Flying:</i>			
Week ending June 28th.....	109.15	.....	.....
Week ending August 29th.....	.....	281.55	.....
Week ending July 31st.....	.....	.....	372.45
<i>Greatest Month's Flying:</i>			
August.....	.....	922.54	.....
August.....	.....	.....	1,089.50
<i>Greatest Day's Flying by One Pilot:</i>			
July 5th—C. J. Clayton.....	10.40	.....	.....
August 24th—J. O. Leach.....	.....	9.30	.....
August 4th—C. A. Schiller.....	.....	.....	12.10
<i>Greatest Week's Flying by One Pilot:</i>			
Week ending June 28th—(G. A. Thompson)			
22 23 24 25 26 27 28			
7.30 3.50 5.40 5.10 6.50 5.30 3.45	38.15	.....	.....
Week ending August 22nd—(T. B. Tully):			
16 17 18 19 20 21 22			
6.45 8.10 6.50 8.00 6.00 5.40 7.40	.....	49.05	.....
Week ending September 4th—(C. A. Schiller):			
29 30 31 1 2 3 4			
8.45 9.25 9.25 4.25 7.00 9.20 3.55	.....	.....	52.15

Conclusion:

An endeavour has been made in this report to present briefly the outstanding essential facts of the Provincial Air Service Operations, Flying and Reconditioning, under my direction.

Incomplete indeed would be this report without a tribute to the many other services which have helped. The untiring efforts and ready co-operation of the Observing Staff have never been wanting. Worthy of mention are the active support and good will of all Foresters. They have placed their knowledge freely at the disposal of the Flying Service, and displayed the greatest patience when service has not been forthcoming.

A tribute must also be paid to the personnel, both flying and ground. No force or service has been better served. Much of their work is carried out under great difficulties. The year's record achieved is, I believe, a standing tribute to their devotion to flying, their energy and initiative.

III.—AIR OPERATIONS

(Observing, Forest Survey and Photography)

Organization and Seasonal History:

In general the organization and use of flying by the Branch has been very similar to that reported on for the past two seasons. As previously, the Province was divided into two main areas, an Eastern and a Western, with headquarters respectively at Sudbury and Sioux Lookout, and a common boundary along the

eastern limit of the Nipigon Forest Reserve. From these two centres flying for forest protection was organized to cover all of the Fire District in the Province north of the French River—Lake Nipissing line and south of the Albany-Lac Seul English River line, exclusive of the small settled areas centering around Haileybury, but inclusive of the Red Lake mining field lying north of Lac Seul.

To carry on this programme, eight machines were allotted to the Western patrol at the commencement of the season, located as follows: Sioux Lookout, two; Pine Ridge (Red Lake District machine), one; Kenora, one; Fort Frances, one; Orient Bay, three.

With the exception of the allotment of three machines to Orient Bay, the above distribution probably requires no further comment. In the case of Orient Bay, two of the three machines were allotted to the Port Arthur district, and were stationed at Orient Bay because of the temporary lack of a better operating point closer to Port Arthur. It is proposed to improve this arrangement for the coming season by opening a new operating base. The third machine was for local duty in the Nipigon area.

It might also be noted in connection with the general organization of this Western Patrol that early in the season an unfortunate flying accident in the Red Lake District reduced the number of available machines to seven. Consequently, during hazardous fire periods occurring later in the season, it was necessary at times to move machines from both Fort Frances and Orient Bay in order to meet serious conditions in the Sioux Lookout and Red Lake areas.

Nine machines were allotted to the Eastern Patrol and were stationed as follows: Longlac, one; Oba Lake, one; Remi Lake, one; Como Lake, one; Biscotasing, one; Sault Ste. Marie, one; Timagami, one; Sudbury, two.

With the exception of the Remi Lake machine, all of the above were of the H.S. 2 L. type in use at other stations in the Province. The machine allotted to this base was a Loening Air Yacht. This machine, while not recommended as a replacement type for the H.S. 2 L., served, at least, to partially demonstrate the advantages which a machine better suited to the requirements of the Branch's work would procure. Quoting from the report of the observer in charge of the Eastern Patrol in this connection: "With the H.S. 2 L. the Remi Lake Patrol . . . required six and one-half hours (6.30); with the Loening it was completed in five hours and twenty minutes (5.20)." The above indicates (1) a saving in flying time of approximately 18 per cent. for the same work performed, (2) a gain in time required to report fires.

Personnel:

During the past season the observing staff engaged in Forest Protection consisted of twenty, made up of two chief observers in charge of Eastern and Western Patrols, nine senior observers, five junior with previous experience, and four new men (Junior Grade B). All observing personnel, with the exception of the four new men, had had previous experience. The value of experience in this line of work is very great. Quoting again from the report of a field officer: "An observer sent out on operations with insufficient experience would probably cost more" (in waste flying, poor fire spotting, etc.) "than the expense of a season's training." It is anticipated that it will be necessary to train four new men next season to replace those leaving the Service.

In addition to spotting fires, observers have also undertaken the construction of permanent improvements for use in connection with the operation of machines such as buildings, telephone lines, etc. Perhaps the most outstanding piece of work of this sort in the past season was the survey and general

supervision of the construction of nine miles of telephone line connecting the Remi Lake station, which is located on an island, with the telegraph office at Moonbeam, Ont. As the result of such work during the past and previous years, the Branch now has telephone connection at all established bases.

Summary of Flight Records:

Listed below is a summary of the requisitioned flying for the Province, classified as to districts and kinds of work. As will be noted there have been distinguished two main lines of work, (1) Forest Protection with two subdivisions, (a) Fire Patrol and (b) Fire Suppression, and (2) Forest Survey, also having two subdivisions (a) Aerial Sketch Type Mapping, (b) Photographic Survey. An attempt has been made to analyse and discuss these in detail:

1. Forest Protection:

(a) *Fire Patrol.*—Under this heading has been included (1) all flying devoted primarily or wholly to the discovery and reporting of fire, (2) the examination of going fires, either by observers or other members of the Branch's Fire Protection staff, (3) a certain amount of miscellaneous flying by protection officers in connection with inspection or general examination of conditions. Examining the record of hours flown on this work, it is interesting to note the relationship between the rate of fire discovery per hour and the occurrence of settlement. This is particularly striking in the case of the Remi Lake patrol, which is confined during a good portion of its course to the developing settlement on the Clay Belt. At this station the discovery of new fires is found to be at the rate of six per hour flown, or one every ten minutes. In contrast to this, the Oba Lake Patrol, covering a territory very largely made up of unsettled forest area, has an occurrence rate of one fire in fifty-six hours of flying, or one every 3,360 minutes. It would, thus, appear superficially that the Cochrane Inspectorate came through a bad fire season. Further examination of the records will show, however, that actually a much more serious fire situation is represented by the six fires reported in the Oba Inspectorate than by the 447 in the Cochrane, since in the latter only one reached a dangerous condition, while in the former four were classed as serious forest fires. Fire occurrence, taken alone, cannot be used as an index to relative hazard conditions.

(b) *Suppression.*—Under this heading has been included only flying requisitioned for the actual transportation of men or supplies in connection with fire fighting. An indication of the sphere of greatest usefulness for flying of this kind can perhaps be found in the indicated increase in patrols where means of travel and communication are poor. This again has a relation to settlement.

The growing importance of suppression and general transportation, particularly in the Western Patrol, has brought out the necessity of further detailed information as to the possibilities and factors affecting this class of aerial work. For supplying such information it has been suggested by the observer in charge of Western Patrols that, as in the case of fire patrols, all requisitions for transportation by any machine be made through the observer. This would automatically authorize the observer to cover the flight with a complete report showing what was carried, together with times, weights and bulk of load; purpose, destination, weather conditions, etc. Such records would serve a most useful purpose in determining the relative cost of various types of fire suppression transport. It would seem probable that records of this kind would also accent the desirability of obtaining (1) lighter and more compact fire fighting equipment, (2) the fitting up of machines to carry special loads.

2. *Forest Survey:*

(a) *Sketching*.—Under this heading is included all aerial operations having for their object the classification of forest growths into the various types used in the preparation of Ontario Forestry Branch timber estimates; together with some mention of specially related technical forest studies carried out under the direction of sketching personnel when flying was impossible.

The areas mapped by this method are to be found in three distinct sections of the Province: (1) in the aerial neighbourhood of Sioux Lookout, (2) north of Longlac, (3) east of Oba Lake. The total covered in these three blocks amounts to about 3,300 square miles with a total flying time of 146.05, giving a rate of over 20 square miles per sketching hour.

No new methods of work were adopted during the season, the preparation of maps, as in previous years, being a question of personal skill and practice based on a general knowledge of the principles of plane table surveying, and an intimate and special knowledge of the aerial appearance of the forest conditions which it was required to recognize.

It is felt, however, that while no innovation or revision of methods has taken place in the past year, there has nevertheless been some advance in the quality of our forest sketch mapping in the past season. Undoubtedly much of this has resulted directly from added aerial experience. Nevertheless it is believed that special forest studies mentioned above have been of material assistance.

The importance of a continuous ground study of forest conditions in developing and maintaining the ability to classify forest growth from the air, cannot be over-estimated, and it would seem advisable to provide all observers engaged on this work with facilities for detailed and systematic ground study of forest conditions whenever feasible.

Acknowledgment of the assistance of Prof. T. W. Dwight, of the Faculty of Forestry, University of Toronto, for expert advice and assistance with certain phases of this work is perhaps permissible at this point. The report on the growth of spruce, submitted over his signature and representing a final compilation of the field and office work of the technical observing staff of the Branch, can be placed to the credit of this work.

(b) *Photographic Survey*.—Approximately 1,800 exposures were made and an area of 3,500 square miles covered by aerial photography during the past season. The total operation required eighty-seven hours forty minutes flying time.

The above total of 3,500 square miles is made up of three separate blocks of territory situated in the North Bay, Sudbury, and Sault Ste. Marie Districts; in all three cases the work was performed upon direct request of the District concerned. Of these, the block lying in the North Bay Inspectorate, representing an area of approximately 570 square miles, lies along the west bank of the Ottawa River. The surface is rough and was at one time well opened up for logging operations based on the Ottawa. Upon the completion of cutting, information on this country, largely in private hands and unrecorded, has gradually lapsed so that a re-survey was required for fire protection purposes.

The territory required for the Sudbury Inspectorate is to be used in connection with the spotting of fires from an Ontario Forestry Branch steel tower located north of Wanapitei Lake in Parkin Township. As a good map is essential to the effective operation of a tower lookout system, and as the country in question is mainly rough and unlikely of further subdivision or more complete

mapping by any agency outside of the Branch, it was considered advisable to obtain this information by Aerial Photographic Survey. The area of this block is approximately 720 square miles.

In the Sault District the area on which information was obtained lies south of the C.P.R. main line between Franz and Heron Bay (Lake Superior) and west of the A.C.R. to the Lake Superior shore line.

This region, known locally as the Pukaskwa country, is a little known and extremely rough country under license to the Spanish River Company. Information as to the geography of this territory has been sought for some time to assist in the organization of an improved protection system, the present almost total lack of detail making progress in this direction very difficult. The area of this tract is about 2,200 square miles.

No attempt can be made in a report of this kind, to deal with the technical problems of this phase of the Branch's aerial operations. It may be briefly stated, however, that some of the greatest difficulties are:

- (1) The large amount of specialized draughting required in the office.
- (2) The necessity of having developing and printing done by an outside organization.
- (3) Inexperienced photographers.

Dealing with these in detail, (1) above is a drawback which has been inherent in the method and one for which there is no recognized cure at the present time. It is hoped, however, that it will be possible to perfect apparatus, now under construction, to a point where a much more effective system of dealing with the office side of this method of survey will be possible. (2) The necessity of having developing and printing done by an outside organization, has been largely caused by lack of laboratory space and equipment for handling the unusually large size aero films. If space and equipment could be provided, work could be handled much more satisfactorily. At present the only photographic plant in Canada equipped to handle this class of work is maintained by the Canadian Air Board in Ottawa, and as they are engaged in the same line of work, it follows that seasonal requirements are bound to clash. There are no commercial firms in the City of Toronto equipped to properly handle aero-films and prints; nor do commercial photographers turn out particularly high grade work of this kind, since requirements for aerial survey are radically different to those governing the general run of commercial photography. (3) Difficulties arising from the inexperience of aerial photographers have to be met, since it has been the policy of the Branch to develop photographers from the regular staff of observers. This method, while beset with difficulties at the outset, will, it is believed, develop a much better type of aerial survey personnel in the long run. Such a man, in contrast to a professional aerial photographer, will have the following valuable qualifications: (a) an adequate conception of the requirements of the Branch and the particular purpose of survey operations; (b) sufficient ability as an aeronaut and navigator to take complete charge of the photographic flight; (c) a working knowledge of the country to be covered, and an appreciation of the proper proportioning of exposures in relation to the surveying difficulties of different portions of the area.

The opinion that the skill and experience required to operate an aero camera for photographic survey purposes, can be acquired without any very heavy wastage of film or flying time, is borne out by the experience of the past season. While a certain proportion of the film has not been exposed to the best advantage, only forty out of 1,800 are not readily usable for survey purposes. The above

record applies to the work of one observer with a total experience of two seasons and about twenty photographic flights, and a second observer, instructed during the season.

Should it be decided to continue this line of work, whose results are required in every line of field operation, it is felt that the Branch is now in a position to do so to advantage.

Recommendations:

The following brief recommendations have been suggested from the past season's experience:

1. *Control of Flying*.—In order to operate a flying service to the best advantage it would seem advisable (a) that one office be responsible for the authorization and recording of all machine movements, (b) that machines fly on written requisition only (O.F.B. Form 72).

2. *Mobility of Machines*.—(a) That the allotment of flying to districts be made on an hourly basis, (b) that arrangements be made with all sections of the Branch using flying whereby machines have the greatest possible freedom of movement from base to base in accordance with varying flying requirements.

3. *Personnel*.—(a) That observers be allotted a position in the O.F.B. organization as detection personnel. It is suggested that observers in charge of Eastern and Western Patrols might be given the opportunity of developing the technical organization of a detection system, including all special detection equipment and personnel for their respective patrol areas; (b) that authority be granted to develop additional air sketching personnel to (1) map cover hazards by aerial sketching, (2) check over and complete forest types on areas covered by photographic survey.

Appendices:

Appended are the reports of Observer G. Swartman in charge of Eastern Patrols, Observer G. H. R. Phillips in charge of Western Patrols, and H. H. Parsons, Forester, in charge of Aerial Type Sketching. Particular acknowledgement is due these men for intelligent and loyal service. A reading of their reports will serve to show how much the writer is indebted to them.

REPORT OF AIR OPERATIONS, 1926

Eastern Patrol

The following is a summary of flying operations relative to the Eastern Patrols for the season of 1926:

The operating season commenced somewhat later than other years, due to a backward spring, and the ice remaining in the smaller lakes longer than usual. When weather conditions did permit the transference of aircraft from Sault Ste. Marie, there was considerable flying done the first few days. This was necessary as a check upon fires already burning and reported from other sources.

Organization:

As in previous years the Province was divided into two parts for purposes of organization and supervision. The western boundary of the Eastern Patrol was a line extending north and south from the easterly boundary of the Nipigon Forest Reserve. The Quebec boundary north of the Mattawa River was the eastern limit of this area, although no regular patrols were carried out over the North Bay Inspectorate. The southern boundary may be described as the

line along the French River and Lake Nipissing, although occasional flights were made over the Parry Sound Inspectorate.

Headquarters of the Eastern Patrol was again located on Ramsay Lake, Sudbury. While this location is not as central as it should be, it has telegraph and railway facilities that other more central stations lack. In addition to the bases used in the season of 1925, new bases were established at Longlac, Bisco, and also a machine was on fire patrol duty at Sault Ste. Marie during the greater part of the season.

With the exception of Sudbury, where there were always two machines, these were all one-machine bases, and in nearly every case, one man had the requisitioning of flying to be done by the machine in his district. This proved to be a very satisfactory arrangement, and should be borne in mind in future when new bases are being established.

The general scheme followed in placing the machines for the eastern part of the patrol area was to ferry them first from the Soo to Sudbury, there to wait until they were required at the various bases. This arrangement could not be improved upon, since it allowed the observers to report first to Sudbury, and spend a few days at headquarters receiving their necessary instructions and equipment.

Detection Flying:

(1) *Fire History.*—During the season of 1926 the fire hazard, while not as intense as at certain periods in 1925, extended over longer periods which might be classified as periods of medium hazard. A total of 793 fires was detected and reported. This figure includes 64 class D fires and 729 of the A, B, C classes. The majority of the latter group were clearing fires, a report being made in most cases as a check against the fire permit issued by the suppression staff.

Reports from Remi Lake show 446 class A, B, C fires, mostly all clearing fires in various stages and in most cases burning under permit. The number of fires in the A, B, C classes reported from this base is probably greater than it would be other years on account of weather conditions during the past two years which did not permit the settlers to burn the accumulation of slash.

(2) *Improvements.*—During the past year an improvement in the reporting of fires has been made (a) by adding to our communication equipment and (b) by better distribution of machines.

(a) Communication:

Bad communication has been overcome to a great extent by the installation of telephone lines at Remi Lake, Bisco, Longlac and Lake Como. Nine and a half miles of permanent line have been constructed at Remi Lake, connecting the air base and the telegraph office at Moonbeam. This line not only enabled prompt reporting of fires but also allowed a much nearer approach to the direct control of patrols by the Fire Inspector at Cochrane, a condition which, due to the varying weather conditions in this large area, is of more than usual importance. Standing requisitions, which were necessary with the poor communication facilities of former years, were not satisfactory.

At Lake Como about two and three-quarter miles of temporary line (army cable) connected the air base and the telegraph office at Esher. By this means constant communication between the Chief Ranger at Chapleau and the air base was assured.

Short telephone lines were also established between the Chief Ranger's headquarters and the air bases at Bisco and Longlac. As in former years, communication was maintained at Ramsay Lake by our own submarine cable line

connected with the Bell System, which gave good service in this, the fourth year, of its use. At Oba Lake, as in past seasons, the Algoma Central Railway permanent 'phone line was used between the air base and the O.F.B. headquarters at Oba, a distance of thirty miles, which arrangement was not entirely satisfactory due to the great number of telephones already connected on this line. At Temagami the Forestry Branch permanent line was used between the air base at Bear Island, and the Chief Ranger's headquarters at Temagami. This line did not always prove satisfactory, due perhaps to faulty construction.

(b) *Distribution of Machines:*

A redistribution of machines in the eastern patrol brought patrols under the direct supervision of the suppression staff at Sault Ste. Marie, Bisco and Longlac. By this redistribution the length of the average fire patrol was shorter than that of last season. This also expedited the reporting of fires.

At Remi Lake an H.S. 2 L. was used in the early part of the season but was later replaced by a Loening monoplane. Since the patrols from this base are very long and mostly over a very poorly watered area, the advantages of using a machine with a good performance will be readily seen. The advantages of a faster machine were partly demonstrated by the saving of time effected by the Loening. With the H.S. 2 L., the Remi Lake patrol via Sesikinika Lake required six and one-half hours flying; with the Loening, it was done in five hours and twenty minutes.

Personnel:

The personnel, with one exception, had one or more years previous experience, and in most cases their work was satisfactory. The value of a season's training in a junior capacity before taking over the work at a sub-base has become quite apparent. There were nine observers attached to the Eastern Patrol, one at each base and two at Ramsay Lake headquarters.

Recommendations:

During the past seasons the following improvements have recommended themselves:

(1) *Patrols.*—Since there was only one patrol from Ramsay Lake even during fire hazard weather, there was always one machine in reserve. This arrangement was very good in so far as the Sudbury Inspectorate was concerned, but there were times when this spare machine could have been used to advantage elsewhere for the betterment of fire detection in the Eastern Patrol area. At this point, may we stress the need for mobility of machines in our present system, unless the number of machines is greatly increased.

It is expected that the hazard during the early part of next season in the Timmins Chief Ranger district, will be greater than last, due to the copper-gold rush in Robb and Jamieson Townships. Our records show that this area contains much slash, which will probably become dangerous, before regular patrols could be commenced from Remi Lake. To cope with this situation, patrols should be arranged to cover this area as soon as Temagami and Sesikinika Lakes are open.

(2) *Machines.*—In the past season much flying would have been done at Como Lake, had there been a machine stationed at that point during the whole summer. This base was without a machine from June 13th to July 14th, and again from July 31st to August 29th, nearly two months during the greatest hazard in this patrol area. It should not be necessary to emphasize the necessity of having a sufficient number of machines available to supply the requirements of all bases, included in the pre-season plans.

While the H.S. 2 L. has proved very satisfactory in the past as a detection machine, when the problem of replacement comes up, it is recommended that a lighter and faster type of aircraft be considered. In September, the writer had the privilege of flying from Como Lake to Orient Bay, in a new R.C.A.F. Vedette equipped with a Lynx motor. This machine should prove more satisfactory for all Forestry Branch work than the types now in use.

The advantages of wireless communication are well known, and it is recommended that this be given a thorough trial during the early part of next season and, if successful, the necessary equipment be installed in all detection machines. Each machine should be provided with a compass and altimeter in the front cockpit. For sketching and photography work especially, it is almost impossible for the observer to carry on his work successfully without these instruments in his cockpit.

(3) *Equipment*.—Buildings for accommodation of personnel should be erected at Temagami, Bisco and Oba Lake, if these stations are to be permanent. Tents are not very satisfactory, and the cost of lumber that is purchased each year for floors and walls of tent camps, would in two years build a suitable cabin.

Boxes should be provided for observer's equipment, the saving of equipment that would be affected would more than pay for their construction. Each observer should also be issued with a canvas bag about 14 by 10 inches. This would greatly decrease the number of maps destroyed each year, which are costly when mounted, and would also enable the observer to have his map-board, etc., in order at all times.

If Oba Lake is to be used as a main base in future, it would be very advantageous to have a Forestry Branch telephone line connecting the air base and district headquarters at Oba. Permission might be had to build this along the Algoma Central Railway, using their telegraph poles. As mentioned before, the present 'phone system at Oba Lake has been very unsatisfactory. Often there is an hour's delay before it is possible to communicate with Oba from the air base.

(4) *Personnel*.—Observers should report to the patrol headquarters for instruction and equipment before the flying season begins, in order to avoid the confusion that usually accompanies the commencement of flying operations. Observers should, whenever possible, be sent to the bases where they were stationed in previous years.

Two or more observers should be in training during the course of the summer in order to assure a trained staff for the following year. An observer sent out on operations with insufficient experience might easily cost more than the expense of his season's training. If work for observers is to be provided for their spare time, it is recommended that it be in connection with air patrol, viz., photographic mapping, compiling maps to show hazards, or any other work of this nature.

All requisitions for transportation flights, etc., should be made to the observer, and he should be instructed to check and record weights of all equipment carried on transportation flights.

Photography:

Considerable oblique photography was done this year, in all approximately 3,500 square miles for a total of eighty-seven hours and forty minutes (87.40). This total time includes flying in connection with vertical pictures of the town-sites of Gogama and Elk Lakes, also two flights made for the purpose of securing publicity pictures.

Owing to lack of available flying, due to fire hazard, this photographic survey work was not commenced until late in the season, when weather and light conditions are not as favourable as in June and July. The largest area photographed was south of the Canadian Pacific Railway between Franz and Heron Bay, south to the north shore of Lake Superior, including what is known locally as the "Pukaskwa Country," a very rugged and mountainous territory the interior of which is very little known. During September and October, when this work was being carried out, it was impossible to work south or west toward Lake Superior, which made the operation all the more difficult. This was due to lack of a distinct horizon which is essential in this work.

(a) *Equipment*.—During the last few weeks two machines equipped with Eastman K. 1 cameras were used.

The camera mounting used this year, designed and constructed by our own personnel, was much better than that used in previous years. With some further slight modifications this mounting would be very satisfactory for use in an H. S. 2 L. flying boat. With the new mounting it is possible to change the film during the flight, which enables the camera operator to expose several rolls, if necessary, on one flight. This was impossible with former equipment.

(b) *Recommendations*.—(1) If possible, it would be well to plan a year in advance for photographic survey work. This would enable those in the field to use the available flying to better advantage. An alternative would be to allot one machine for photography, providing there was sufficient work of this class to warrant it.

(2) Before next season the camera mountings should be modified to suit existing conditions.

(3) A new camera case should be constructed to contain the new K. 1 camera. Boxes should also be provided for the fittings belonging to each camera.

(4) Arrangements should be made, if possible, to expedite delivery of new film, also in the developing, in order to advise results to those in the field. This would also make it possible to turn out a map of a small area within a few days after the photographs were taken.

(5) Photography should be carried out during the summer, especially the early part when the days are longer, the advantages of which are quite obvious.

With our present staff and equipment the Forestry Branch should be in a position to undertake all work of this nature that may be required within the Province.

Western Patrol

The following is a general review of the operations in the Western Area for the summer of 1926:

The headquarters of the Western Patrol was at Sioux Lookout, with sub-stations at Orient Bay, Fort Frances, Kenora and Pine Ridge. The machines from these stations were used to patrol that portion of Ontario lying west of the 87th meridian of longitude and about as far north as the 52nd meridian of latitude. The station at Pine Ridge was established this year on account of the rush of prospectors during the winter and early spring to Red, Woman, and Narrows Lakes.

The western observers, with two exceptions, were all experienced, and are all recommended for similar positions next year.

The machines used (H.S. 2 L.) gave very satisfactory service, but in the event of the Government purchasing new ones, there is a feeling among all concerned that the efficiency of the Service would be increased by the purchase of lighter and faster machines for detection work.

Although the rainfall during the summer in question seemed above the average and quite well distributed over the entire season, forty-seven D class and one hundred and thirty-two A, B, and C class fires were recorded in the western area. Seven hundred and ninety hours flying were used for fire patrol and four hundred and eighty-three for suppression.

A certain amount of growth study was done by the observers at Sioux Lookout. Three plots were completed. At the time of year this work was done the flies were numerous and the observers failed to show the same interest in this that they did in their work as observer.

In conclusion I would suggest that all requisitions, whether for transportation or fire patrol, be made through the observer, and in the case of transportation flights the observer should show on his flight report a list of all material carried. In some cases he would be unable to check this personally but should secure a list from the pilot or chief ranger.

The installation of wireless on machines, and at the different bases, would prove very useful providing the type installed was reliable in all weather and capable of sending three hundred miles.

REPORT ON AERIAL SKETCHING FOR THE YEAR 1926

The season's sketching programme was carried out from the following three bases: Sioux Lookout, Longlac, and Oba Lake. Field operations commenced June 5th at Sioux Lookout and were completed October 15th from Oba Lake.

A total of 135 flying hours were employed in actual aerial reconnaissance, and approximately 3,300 square miles were mapped in considerable detail.

The field work for the season may be classified as follows:

1. *Sketching:*

(a) *Sioux Lookout.*—The field work at this station commenced on June 5th and was completed July 23rd. During this time twenty-four flights, totalling seventy hours, were made, approximately sixty-five of which were used in actual sketching work. The remaining five hours were employed in transportation of maps and supplies to forest survey parties working in the vicinity of Lac Seul.

Five blocks totalling 2,250 square miles were mapped in these twenty-four flights of sixty-five hours duration. About one-half of this area was located in the vicinity of Lac Seul, the remainder lying east of Vermillion Lakes. Much burn was in evidence over this latter area. The timber bordering Lac Seul, however, particularly on the eastern shore, appeared in many places to be of excellent quality and density. Burn again predominated north and west of Wapesi Bay.

(b) *Longlac.*—Four hundred and twenty-five square miles were sketched from this base, taking a total of twenty-five hours for completion. This does not include abandoned flights nor those made for transportation. The above area was located north of the Transcontinental from Jobrin to Grant. Burn and swamp predominated with generally poor timber.

(c) *Oba Lake.*—Operations commenced September 22nd and mapping was discontinued with the completion of the season's programme on October 18th. Considerable unproductive flying took place from this base, due to the uncertainty of weather conditions, and the necessity of completing the area in question.

Six hundred square miles were mapped in considerable detail, the waterways on the original maps being very poor. Forty-five hours constituted the total flying time, of which probably thirty-five were used in actual sketching.

2. *Forest Studies connected with Aerial Sketching:*

In conjunction with aerial sketch mapping, a programme of special forest studies was carried out under the direction of the sketching personnel. During the current season a total of thirteen specially selected plots were studied entailing the analysis of over 200 trees above stump height (1.5 feet from the ground); an additional 200 seedlings were analyzed for growth data below stump height.

Of the thirteen plots, three were located in the Sioux Lookout region and ten in the neighbourhood of Longlac. All of these represent variations of the northern coniferous forest and cover pure spruce and jack pine associations. The proportionally small number of plots studied at Sioux Lookout was due to (1) the difficulty of locating suitable plots within a reasonable working distance of the air base, and (2) the occurrence of a comparatively high fire hazard period which did not permit of observing personnel leaving the base, even when not actually flying. At Longlac better opportunities for this work were present; plots were closer to the camp and fire hazard was comparatively low.

Studies of selected plots included the following lines of information: (1) Stand tally down to 1 inch (including dead and "down"); (2) stem analysis of twenty trees at 8.15 foot intervals (above a 1.5 foot stump); (3) general forest description, including stand photographs; (4) collection of typical annual plants and shrubs. Plant collections included 170 typical specimens.

The importance of detailed local studies in developing a sketcher's ability to recognize and classify forest growths can hardly be overestimated. Work of a similar nature has always been recognized in the development of an aerial sketcher; it would seem that a certain amount is essential to maintain the abilities originally acquired.

If the sketcher is to improve, a systematic programme of forest studies primarily for his benefit should be maintained.

PROTECTION										SURVEY								
WESTERN PATROLS																		
Fire Patrol																		
Name of Base	Days base open	Days no flying required	Days flying	Flights	Hours	Miles	Area	Sq. miles per hr.	• "D"	• "ABC"	Total Fires % of	Flights	Hours	Photography		Sketching		
														Base	Flights		Hours	
Sioux Lookout.....	146	110	36	57	108-57	6,343	166,216	1,539	13	17	30	16.7	51	40-15	Sudbury.....	12	28-05	
Orient Bay.....	155	84	71	159	382-00	22,944	889,962	2,231	11	66	77	43.15	47	51-30	Temagami.....	19	22-50	
Pine Ridge.....	133	45	88	16	30-45	1,188	37,860	1,282	13	2	15	8.32	359	359-55	Como.....	4	13-15	
Fort Frances.....	146	120	26	36	65-50	4,698	232,894	3,582	8	8	16	8.93	9	9-45	Oba.....	6	23-30	16
Kenora.....	136	87	49	96	202-28	11,737	420,144	2,079	2	39	41	22.9	16	21-30	Longlac.....	.....	26-15	14
Totals.....	716	446	270	364	790-00	46,910	1,747,036	2,211	47	132	179	100%	482	482-55	Totals.....	41	87-40	54
EASTERN PATROLS																		
Sudbury.....	156	92	64	105	308-13	18,661	674,602	2,190	27	205	232	29.30	.....	.....	.....	.....	.....	.....
Soo.....	136	53	43	90	175-57	10,325	295,800	1,690	11	57	68	8.57	4	7-00	.....	.....	.....	.....
Temagami.....	122	72	61	52	126-40	8,664	246,673	1,957	11	10	21	2.64	.....	.....	.....	.....	.....	.....
Bisco.....	125	86	39	52	142-34	7,915	292,394	2,059	2	4	6	0.75	.....	.....	.....	.....	.....	.....
Como Lake.....	67	110	21	21	50-00	3,540	216,261	4,325	.....	4	4	0.50	.....	.....	.....	.....	.....	.....
Oba Lake.....	151	84	67	75	339-32	16,710	664,600	1,960	4	2	6	0.75	11	20-35	.....	.....	.....	.....
Remi Lake.....	106	72	20	31	72-57	4,705	304,940	4,235	1	446	447	56.36	.....	.....	.....	.....	.....	.....
Longlac.....	136	85	51	56	91-10	7,050	263,662	2,895	8	1	9	1.13	28	25-30	.....	.....	.....	.....
Totals.....	999	657	336	482	1,307-03	77,570	2,958,932	2,264	64	729	793	100%	43	53-05	.....	.....	.....	.....
Provincial Totals.....	1,715	1,103	606	846	2,097-03	124,480	4,707,968	2,245	111	861	972	.....	525	536-00	.....	.....	.....	.....

* Schedule of Fire Classification:

A Fires—Settlers fires burning under permit. Considered safe.

B Fires—Small fires in settled territory. Rangers attention required.

C Fires—Small fires in hazardous surroundings. Considered small enough to be controlled by two men.

D Fires—Large fires in hazardous surroundings requiring more than two men.

IV.—REFORESTATION

Provincial Forest Stations:

St. Williams (Norfolk County).
Orono (Durham County).
Midhurst (Simcoe County).

Provincial Transplant Nurseries:

Sand Banks (Prince Edward County).
Kemptonville (Grenville County).

County Forests:

Hendrie (Simcoe County).
Vivian (York County).
Northumberland (Northumberland and Durham Counties).
Uxbridge (Ontario County).

*Private Forests.**Tree Planting:*

Private Planting.
Demonstration Plots.

*Seed Collecting:**Summary of Nursery Stock.**Summary of Tree Distribution.*

ST. WILLIAMS NURSERY

Extension of improvement cuttings on natural woodland sites, characterized late fall and winter operations. In this connection it is felt that a continuance of such a policy tends to materially better the condition of the healthy trees that are left, since the removal of sickly and otherwise undesirable growth enhances the development of the superior species.

In order to maintain a permanent organization the executive field staff was retained the year round. Little difficulty is encountered in keeping these men employed during the winter, as, in addition to general work of a repairing and of a preparatory nature, there is always recourse to silvicultural work.

Specific reference may be made to the construction of 3,000 crates for tree disposal, seed extraction, and plantation management. In connection with this latter activity eleven of the older plantations totalling an area of 70 acres were thinned, with a resultant yield of 68.8 cords of wood which is being used on the premises as fuel. Nursery work commenced on the 29th March, nearly two weeks later than in the spring of 1925.

Sixty employees were added to the staff, making a total personnel of seventy-four. Twenty-six temporary men were taken on later in April to assist in the disposal of permanent planting stock, and the transplanting of a new crop, all of which must be executed within a curtailed period of time.

The lifting of nursery stock for distribution commenced in April. Although the frost was not out of the lower lying sections, it was possible to work

on the higher sandy knolls. In excess of 3,000,000 trees, comprising mainly conifers, were lifted and disposed of during the spring of 1925.

Seeding: With the exception of a few tentative beds of pine and spruce, and the necessary seeding of elm and soft maple in the spring, all tree seed was sown in late fall after danger of germination was past. Seeding for the year may be classified under two headings:

(a) Coniferous Seed Sown:

SPECIES:	No. of Beds	Total Seed Sown Pounds
White Pine.....	210	262½
Red Pine.....	680	587
Scotch Pine.....	40	25
Jack Pine.....	42	21
White Spruce.....	88	77
Norway Spruce.....	149	145¾
Japanese Larch.....	34	43½
White Cedar.....	34	29¾
Red Cedar.....	10	50
Tamarac.....	2	2
Totals.....	1,289	1,243½

(b) Hardwood Seed Sown:

SPECIES:	Total Amount of Seed Sown	
	Bushels	Pounds
Black Locust.....	.....	36
Silver Maple.....	10	.....
Elm.....	2	.....
Red Oak.....	25	.....
Butternut.....	8	.....
Walnut.....	1,174	.....
Hard Maple.....	6	.....
Hickory.....	1	.....
Black Cherry.....	.....	133
White Ash.....	4	.....
White Birch.....	.....	6
Yellow Birch.....	.....	8
Totals.....	1,230	183

Nursery Lines: Excellent progress attended the lining out of transplants in the spring of 1926, in that the total number of trees transplanted exceeded that of 1925 by nearly one million, the total number of all species being 4,524,900.

No transplants were lined out during the fall of 1926, as this practice has been definitely done away with, owing to excessive losses as a result of winter injury, and heaving of transplants in the spring.

Transplant distribution to the Provincial Forestry Station at Orono and Midhurst was relatively small as these nurseries are practically independent of other sources of seedling supply, since they are now in a position to grow most of their own stock.

TRANSPLANTS SHIPPED TO OTHER PROVINCIAL FORESTRY STATIONS

Place	Total
Orono.....	1,162,000
Midhurst.....	100,000
Kemptville.....	180,000
Bloomfield.....	112,000
	<hr/> 1,554,000

Fertilizers: As a direct result of consistent fertilizing it has been found possible to increase the annual output of planting material on the same area. Primarily the soils at the Norfolk Forestry Station were lacking in organic matter, and only by heavy manuring, and by ploughing down green crops has it been possible to arrive at the present degree of fertility. Each succeeding year, however, reveals an increased productivity in the nursery section. Barn-yard manure comprises the main fertilizer as it seems to fill the bill in the return to the soil of those constituents requisite to the development of good nursery stock. Commercial fertilizers and lime was used in 1926 rather more sparingly than in prior years, since most of the nursery compartments had already received a liberal application in 1925.

It must be understood that the growing of forest tree seedlings is not like farming. When a crop of trees is taken off there is nothing left to plough down and therefore it is necessary in the absence of crop rotations to renew the soil nutrients by direct applications of fertilizers.

FERTILIZERS APPLIED DURING 1926

	Totals
Manure.....	781 tons
Lime.....	4 tons
Rock Phosphate.....	350 lbs.
Acid Phosphate.....	3,400 lbs.
Dried Blood.....	1,550 lbs.

Tree Seed: On account of the poor seed crop of 1925, and the increased amount of seed that is being sown annually, there is a general shortage in storage at the present time.

SEED IN STORAGE AT ST. WILLIAMS

SPECIES:	Amount	
	Pounds	Bushels
White Pine.....	13	....
Red Pine.....	827½	....
Scotch Pine.....	78½	....
Jack Pine.....	nil	....
White Cedar.....	5	....
Red Cedar.....	3	....
White Spruce.....	2	....
Norway Spruce.....	401	....
Sitka Spruce.....	10	....
Balsam.....	67	....
Basswood.....	5	....
Red Oak (acorns).....		4
White Ash.....		3
Black Locust.....	30½	....
Totals.....	1,442½	7

Addition to Property: During 1926, the acquisition of the major portion of what are locally known as the Normandale Plains evidences a notable advancement in the life of the Norfolk Forestry Station. These plains have lain waste for decades, and the 1,500 acres now procured by the Crown will be developed, with the dual aim of reforestation and improving that section which has for years been an eye-sore and general drawback in the progress of the district. Added to that of the Headquarters property, the St. Williams Forestry Station now comprises a total area of 3,145 acres.

An auxiliary pumping station was erected to meet with the ever-increasing irrigation requisites. The machinery of the original station will be transferred to this new building, and in its place there is being installed an electrically

driven centrifugal pump capable of raising 10,000 gallons of water per hour. Underground water mains have been extended and very little further work is necessary to complete a system of irrigation that will provide water for every nursery compartment.

Another addition to property worthy of note and which marks a distinctive advancement relates to the installation of Hydro-Electric.

Roads: Aside from maintaining all woodland roads in a good condition a considerable amount of work was expended in the construction of main gravel roads throughout the nursery area. Thousands of tourists drive through our property each year, creating a condition which we consider warrants the building of possible driveways.

Two and one quarter miles of road, namely, part of the fifth concession, have been taken over by the Station. One-half of a mile of this road now gravelled, and otherwise improved, is considered a first-class highway.

Work in connection with road building commenced this fall on the Normandale property. Fifteen teams and twenty men are employed hauling gravel for the construction of the main road that is to pass through that section.

The Department is fortunate in possessing a fine gravel pit convenient to the road that is being built.

Silviculture: Twenty-five acres of woodland were subjected to improvement cutting. This area comprised a two storey forest made up of large black oak and a forty-year-old under forest of white oak, white ash, silver maple and scattered hickory. The black oak was converted into logs and fuel. On account of a surplus of fuel, very little clean cutting of the scrub oak type was done. It has in past years been our policy to clear those sections of the property on which inferior natural growth existed, and afterwards plant out superior species, but now, since the Normandale property has been acquired, there will be an outlet for our permanent planting stock, should there be a surplus, after spring shipments take place.

Only one new plantation was established in 1926. This comprised four acres of three-year-old European larch set out during late fall. It has been found inadvisable, as a general rule, to set out plantations in the fall, as there is a greater loss sustained than from spring planting.

A record of the total permanent planting effected throughout the year is herewith submitted.

PERMANENT PLANTING DURING 1926

Where Planted	Remarks	White Pine	Red Pine	Jack Pine	Poplar Cuttings	Willow Cuttings	European Larch.	Total
Normandale.....	Protective...	.....	.....	.....	42,000	2,000	.....	44,000
Plantation Roads..	"	.....	.....	.....	19,000	.....	.....	19,000
Everett Flats.....	Propagation	.....	.....	.....	60,000	2,600	.....	62,600
Plantation No. 4	Refill.....	1,300	.....	.....	.....	.....	.....	1,300
" 46	"	1,500	.....	.....	.....	.....	.....	1,500
" 48	"	700	.....	.....	.....	.....	.....	700
" 50	"	.....	.....	2,800	.....	.....	.....	2,800
" 51	"	.....	790	.....	.....	.....	.....	790
" 52	"	.....	460	.....	.....	.....	.....	460
" 53	"	.....	.....	1,300	.....	.....	.....	1,300
" 54	"	.....	1,200	.....	.....	.....	.....	1,200
" 57	New Planta- tion.....	.....	.....	.....	.....	.....	25,200	25,200
Totals.....	.....	3,500	2,450	4,100	121,000	4,600	25,200	160,850

Investigation: Growth studies of the various plantations were continued. Both height and D.B.H. measurements of sample plots were recorded, while two special experiments were established in an endeavour to arrive at the effect of thinnings upon the annual increment, with specific reference to white and red pine plantations.

Protection (Disease and Insects): Ninety per cent. of the total loss which occurs during the development of nursery stock to that size and age requisite for permanent planting is met with in the infant seedling stage. For the past four years investigations have been carried on in connection with seedling development with a view of arriving at the cause of this mortality and some way of combating it. Two men were employed solely on this work in 1926, and the results of their observations coupled with those of previous years, form a basis of control which seems to be working out most favourably. Although seed bed losses still exist, they are greatly minimized.

Losses of seedling and transplant stock accruing from cut worms, were rather more severe in 1926 than obtained in other years. There does not appear to be any means of control of this pest other than deep cultivation, and the adoption of a system of crop rotation. Heavy manuring first prior to seedling production appears to aggravate matters and create a soil condition in which the insects are most active.

Weevil injury continues to grow less, while no evidence of the White Pine Blister Rust was found. Preventive measures are, however, being consistently carried on, since it is felt that it is imperative that disease and insect factors be eliminated at least in the immediate vicinity of the nursery's productive area.

NURSERY STOCK FOR 1927 DISTRIBUTION

CONIFERS:	Number
White Pine.....	690,000
Red Pine.....	1,460,000
Scotch Pine.....	900,000
Jack Pine.....	510,000
White Spruce.....	190,000
Norway Spruce.....	300,000
White Cedar.....	410,000
European Larch.....	47,000
Balsam.....	40,000
Totals.....	4,547,000
HARDWOODS:	Number
White Ash.....	68,000
White Birch.....	5,500
Yellow Birch.....	6,500
Beech.....	2,100
Sweet Chestnut.....	10,000
American Elm.....	117,000
Honey Locust.....	3,900
Manitoba Maple.....	3,500
Soft Maple.....	82,000
Hard Maple.....	9,000
Red Oak.....	38,000
Routed Poplar.....	300
Poplar Cuttings.....	300,000
White Walnut.....	1,200
Black Walnut.....	50,000
Routed Willow.....	500
Willow Cuttings.....	5,000
Totals.....	702,500

The foregoing represents the total of stock that is available for permanent disposal in the spring of 1927. Other nursery stock in various stages of development totals 18,363,000 trees.

ORONO NURSERY

The past year has been exceptionally unfavourable for nursery operations. Light snowfall and high winds during the winter took a heavy toll in the transplant beds. The growth period in the spring opened with a severe drought which resulted in a very high mortality in the sprouting seed beds and in the spring transplant stock. This was followed by a season of unusually heavy precipitation and low temperatures which retarded growth throughout the summer.

Seeding: The absence of irrigation facilities again proved a serious handicap to seed-bed operations, as the drought in the early part of the season reached its climax just as the seedlings were appearing above ground. The loss in seed-bed stock was, therefore, unduly high.

During the year a total of 400 coniferous seed-beds were set out and 274 bushels of hardwood seed sown as follows:

SPRING SOWING OF CONIFEROUS BEDS

SPECIES:	Number of Beds Sown	Amount	
		Pounds	Ounces
White Cedar.....	10	7	8
Jack Pine.....	10	5	10
White Pine.....	10	15	..
Norway Spruce.....	10	12	8
White Spruce.....	10	10	..
Totals.....	50	50	10

FALL SOWING OF CONIFEROUS BEDS

SPECIES:	Number of Beds Sown	Amount	
		Pounds	Ounces
White Cedar.....	20	15	..
Hemlock.....	10	12	8
Jack Pine.....	30	16	14
Red Pine.....	90	67	8
Scotch Pine.....	60	37	8
White Pine.....	90	135	..
Norway Spruce.....	25	31	4
White Spruce.....	25	25	..
Totals.....	350	340	10

In addition to the above coniferous seed, the following hardwood seed was sown:

SPECIES:	Bushels
White Ash.....	10
White Elm.....	10
Hard Maple.....	6
Red Maple.....	18
Silver Maple.....	10
Red Oak.....	20
Walnut	200
	274

Transplanting: During the year 1,412,000 conifers and 137,000 hardwoods were transplanted'

SPRING TRANSPLANTING OF CONIFERS

SPECIES:	Seedlings Grown at	Number of Seedlings
European Larch.....	St. Williams.....	48,000
Jack Pine.....	".....	172,000
Red Pine.....	".....	370,000
Scotch Pine.....	".....	124,000
Scotch Pine.....	Orono.....	272,000
Norway Spruce.....	St. Williams.....	36,000
White Spruce.....	".....	60,000
		<hr/> 1,082,000

FALL TRANSPLANTING OF CONIFERS

SPECIES:	Seedlings Grown at	Number of Seedlings
Jack Pine.....	St. Williams.....	25,000
Red Pine.....	".....	50,000
Scotch Pine.....	".....	175,000
Norway Spruce.....	".....	30,000
White Spruce.....	".....	50,000
		<hr/> 330,000

SPRING TRANSPLANTING OF HARDWOODS

SPECIES:	Number of Seedlings
White Ash.....	5,000
White Elm.....	40,000
Silver Maple.....	80,000
Hard Maple.....	12,000
	<hr/> 137,000

Fertilizers: Green manures were resorted to extensively, crops of fall rye and buckwheat being ploughed under on all land not actually in use for nursery operations. In addition, the following fertilizers, other than green manures, were applied during the year:

Manure.....	115 tons
Dried Blood.....	250 lbs.
Acid Phosphate.....	300 lbs.
Sulphate of Ammonia.....	100 lbs.
Muriate of Potash.....	200 lbs.

Demonstration Plantations: Thirteen and one-half acres were planted permanently for demonstration purposes. In the southern section of the nursery the plantations were increased by six and three-quarters acres. In the northern part, six and three-quarter acres of hillside forming the east side of the main nursery road were planted to form panels of various species. This road is used extensively by visitors and an attempt was made to concentrate into this area as many types of plantation as possible, for purposes of ready comparison by the general public.

PLANTATIONS IN SOUTH SECTION

SPECIES:	Number of trees
Red, White, Scotch, Jack Pine.....	1,615
Red and White Pine.....	4,840
Silver Maple and White Ash.....	905
Walnut and Butternut.....	810
	<hr/> 8,170

PLANTATIONS IN NORTH SECTION

SPECIES:	Number of trees
White Ash.....	605
Silver Maple.....	1,210
Red Maple.....	1,210
Scotch and White Pine.....	910
Red and White Pine.....	910
European Larch.....	605
Walnut and Butternut.....	1,210
All species.....	1,515
	<hr/> 8,175

An addition of 2.5 acres was made to the hardwood plantation in the north-west corner of the property. This addition consisted of alternate rows of white ash, white elm and red maple—one-year stock—a total of 3,025 trees.

Buildings: Building operations were confined to the construction of a double garage 20 feet by 20 feet, of cobble stones and frame construction and of the cottage roof type. This building was located immediately in the rear for the headquarters house.

The roof of the barn which was on the property when acquired was re-shingled.

Roads: The main drive through the nursery was extended below the fifth concession in order to render the plantations in the south section easily accessible. Nursery roads were laid out in this section and graded in order to facilitate operations.

Publicity: This year, in pursuance of the policy adopted in 1923, exhibits were placed at four fairs. These were: Peterborough, in Peterborough County; Lindsay, in Victoria County; Markham, in York County; and Orono, in Durham County. The fairs were of five, four, two and one days' duration, respectively.

At Peterborough a number of transparencies and an automatic motion picture machine were added to the exhibit, doing much to enhance its value. At Markham and Orono an automatic balopticon was used in place of the transparencies and the motion picture machine. This also proved of great display value.

Owing to the very wet weather, which rendered practically all fairs a failure this year, the immediate results of the exhibit were not as apparent as in former years. The farmers were tied to the land by a late harvest and a wet fall. At the four fairs visited, there was rain on three days of the five at Peterborough, two of the four at Lindsay, and on the one day at Orono.

In addition to exhibiting at the fall fairs, we co-operated with the Durham County Representative of the Department of Agriculture by giving lectures on reforestation and forestry questions generally, at the Agricultural Short Course, held at Orono during the winter. A small exhibit with an appropriate card was used to embellish the Durham and Northumberland Counties exhibit in the Department of Agricultural section at the Canadian National Exhibition, also as a result of this co-operation.

NURSERY STOCK ON HAND FOR DISTRIBUTION, 1927

CONIFERS:		Number
White Cedar.....		15,000
European Larch.....		15,000
Jack Pine.....		43,100
Red Pine.....		7,500
Scotch Pine.....		70,000
White Pine.....		255,000
Norway Spruce.....		30,000
White Spruce.....		165,000
Red Cedar.....		900
		<hr/> 601,500
HARDWOODS:		
White Ash.....		20,000
White Birch.....		4,000
Yellow Birch.....		1,500
Elm.....		220,000
Silver Maple.....		140,000
Sugar Maple.....		6,500
Red Oak.....		15,000
Walnut.....		1,970
Poplar.....		30,000
Willow.....		25,000
		<hr/> 463,970

Other nursery stock in various stages of development totals 5,866,400.

MIDHURST NURSERY

Seed Beds: The seed beds were quite a success during the past season. The germination was good, and the loss during the summer was comparatively low. There was a total of 429 for the season 1926.

(a) CONIFEROUS SEED BEDS:

Species	Sowed Fall 1925	Sowed Spring 1926	Sowed Fall 1926
White Pine.....	102	18	44
Red Pine.....	122	27	117
Jack Pine.....	10	..	..
Scotch Pine.....	54	2	42
White Spruce.....	21	..	9
Norway Spruce.....	..	25	37
White Cedar.....	20	..	9
Hemlock.....	8	..	6
Red Cedar.....	20	..	..
	<hr/> 357	<hr/> 72	<hr/> 264

(b) HARDWOOD SEED SOWN:

Species	Number of Bushels
Walnut.....	259
Butternut.....	23
White Elm.....	5
Silver Maple.....	9
Sugar Maple.....	9
Black Cherry.....	15
Yellow Birch.....	1½
Red Oak.....	45¾
Basswood.....	1
Hickory.....	1½
	<hr/> 369¾

Nursery Lines: The following seedlings were lined out during the season of 1926. All, except white spruce, were lifted from Midhurst beds.

SPECIES:	Spring	Fall
White Pine.....	28,000	400,000
Red Pine.....	598,000	190,000
Scotch Pine.....	802,000	.....
Jack Pine.....	90,000	.....
White Spruce.....	66,500	.....
White Cedar.....	530,000	.....
Red Cedar.....	2,000	.....
Balsam.....	25,600	.....
	2,142,100	590,000
Total for season.....		2,732,100

Fertilizers: The nursery ground is being built up by using manure, clay, black muck from swamp, and ploughing under cover crops of sweet clover, rye and vetch.

An experiment was made this year with muck on ground that was put into nursery lines in spring of 1926. The plants on strip where muck was put on during winter were healthier and larger. The experiment showed quite conclusively that the muck is very beneficial to the soil. The same experiment is being tried with clay next spring. A light dressing of clay is put on the seed-bed ground and also on other land that is very light. Bone meal is put on the seed-beds when they are made up.

Buildings: Two hen houses and a small, open shed for waggons, were built this year.

Roads: The roads on property are being gradually graded up and gravelled

Survey: Strip surveys have been made of woodlots. A large scale map is being made, and all the information gained will be tabulated.

Silviculture: There is a wide variety of woodlots on the Forest Station property, and the management of these is going to be one of the most interesting parts of its development. These woodlots are being gradually brought under management. Last winter 10,000 board feet were sawed into lumber, and 200 cords of wood were sold in the neighbourhood, besides the wood used at Station. Selection cutting was practised; all diseased, ill-formed and weed trees were taken out. Burning and lopping was practised in brush disposal.

During November and December of 1926 a considerable area of swamp has been cleaned out, and poles have been taken out to be worked up into seed-bed frames.

There is considerable poplar (*Populus grandidentata*) in varying sizes from sapling to trees 15 inches D.B.H. During the winter of 1925-26 it was observed that a great number were being attacked by a fungus. A specimen was sent to Botany Department at Toronto, and it was identified as poplar canker (*Hypoxylon pruinaum*). It is very prevalent, attacking trees up to 10 inches D.B.H. It is a very serious matter as poplar has come in very thickly all through this section and if it is destroyed there will not be much wood left.

Three new plantations were established in fall of 1926, planting up an area of thirty-five acres. One plantation is especially interesting, as two-year-old red pine seedlings were used for planting.

Landscape Work: A large number of hardwoods—basswood, white birch, red oak—were moved in the fall of 1926 for avenues and landscape work around the dam and site for superintendent's residence. Twenty-five trees were moved in early winter with ball of frozen earth.

Publicity: Eleven fall fairs were visited with an exhibit. At most fairs there was a marked interest shown, and many prospective planters were given literature and application forms.

Community Centre: The Forest Station is becoming the local community centre for a large section of country. There is a fine athletic field and an open-air skating rink. Both the athletic field and rink are serving a need in the neighbourhood. On this account the immediate community appreciates the Forest Station more than they otherwise would.

NURSERY STOCK FOR 1927 DISTRIBUTION

CONIFERS:		Number
White Pine.....		60,000
Red Pine.....		445,000
Scotch Pine.....		663,000
Jack Pine.....		70,000
White Spruce.....		19,000
Norway Spruce.....		12,000
		<hr/>
		1,269,000
HARDWOODS:		
White Elm.....		18,000
Silver Maple.....		18,600
White Ash.....		21,700
Red Oak.....		19,890
Sugar Maple.....		1,975
		<hr/>
		80,165

Other trees in various stages of growth are as follows: 8,957,852.

TRANSPLANT NURSERIES

SAND BANKS

Planting work at the Sand Banks this year consisted of setting out surplus stock on the more favourable areas. The work of planting rooted poplars was continued on a limited scale and experimental work of sowing sweet clover under brush was found successful.

The number of trees planted permanently at the Sand Banks was eight thousand.

STOCK ON HAND FOR 1927 DISTRIBUTION

	Number
White Pine.....	600
Scotch Pine.....	20,300
Jack Pine.....	24,000
White Spruce.....	23,000
White Cedar.....	7,650
White Ash.....	18,000
Soft Maple.....	2,300
Miscellaneous hardwoods.....	4,400
	<hr/>
Other trees in various stages of growth number.....	100,250
	<hr/>
Grand total.....	199,045

KEMPTVILLE

Trees were distributed locally from this nursery as last year, and several thousand were shipped by rail. The growing demand for trees in this section of the province will soon necessitate the enlargement of nursery facilities.

STOCK ON HAND FOR 1927 DISTRIBUTION

	Number
White Pine.....	12,400
Red Pine.....	10,600
White Spruce.....	4,000
Norway Spruce.....	2,500
Cedar.....	3,000
Soft Maple.....	2,000
	<hr/>
	34,500
Other trees in various stages of growth number.....	44,500
	<hr/>
Grand total.....	79,000

COUNTY FORESTS

HENDRIE

Seven hundred and seventy-five acres of the one thousand acre block has been planted. There are fifty acres of open land to plant and the remainder of the block is covered with second growth poplar, and a small area of swamp. All plantations are doing well.

Fire roads were cultivated during summer, keeping weeds and grass down. A veranda was put on back of foreman's house.

Sixty-five acres of new plantation were planted in the spring. This plantation is especially interesting as stock used was white pine (1-2) and two-year-old red pine seedlings. The loss in this plantation during summer was: white pine, 5 per cent.; red pine, 10 per cent. The cost for planting, including furrowing, hauling, supervision and planting was \$5.02 per acre.

The following trees were planted during season:—

Red Pine.....	74,000
White Pine.....	143,000
Jack Pine.....	6,000
Scotch Pine.....	9,000
	<hr/>
	232,000

VIVIAN

Trees planted were as follows:—

Red Pine.....	29,000
White Pine.....	44,000
Scotch Pine.....	50,000
Jack Pine.....	60,000
Poplar.....	31,000
	<hr/>
	214,000

During the year 630 rods of rail fence was built and 200 rods of wire fence. One mile of fire line was cut through wooded areas and two and one-half acres of woodland was improved.

During the summer two fires occurred on grass land adjacent to the forest property. The first, which occurred in April, burned 125 acres, the second in July, 150 acres. By taking on extra help for a few days these fires were controlled and kept off the property.

NORTHUMBERLAND

During the spring season the following trees were planted:—

White Pine.....	47,000
Scotch Pine.....	25,000
Red Pine.....	25,000
Jack Pine.....	53,000
Elm.....	12,025
Ash.....	12,000
Soft Maple.....	12,025
	<hr/>
	186,050

During the summer one mile of fire line was stumped and cultivated, and one and one-half miles of fence erected.

As this property is situated in a well known berry-picking area there is considerable danger of fire during berry season. This necessitates additional patrolling. One fire occurred this year, just off the forest property, but was quickly controlled.

UXBRIDGE

The larger portion of this forest had been acquired before planting time in the spring and a permanent foreman was placed in charge, and commenced his duties at that time.

Trees planted were as follows:—

Scotch Pine.....	82,000
White Pine.....	10,000
Red Pine.....	10,000
Jack Pine.....	20,000
	<hr/>
	122,000

During the summer the property was improved by the erection of fences and the marking off of fire lines. One mile, 220 rods of fencing was built and 430 rods of fire line partly completed.

PRIVATE FORESTS

OSLER

The following trees were planted:—

Scotch Pine.....	100,000
Elm.....	10,000
Ash.....	10,000
Walnut.....	300
Butternut.....	300
Soft Maple.....	43,000
	<hr/>
	163,600

WILLIAMS

The following trees were planted:—

White Pine.....	3,000
Red Pine.....	25,000
White Spruce.....	2,000
	<hr/>
	30,000

MULOCK

The following trees were planted:—

Red Pine.....	5,000
White Pine.....	15,000
Scotch Pine.....	40,000
Walnut.....	2,000
	<hr/>
	62,000

TREE PLANTING

PRIVATE PLANTING

This year 2,945 persons received trees for private planting. A total of 2,790,549 trees was distributed for this purpose.

DEMONSTRATION PLOTS

New plots established:—

Park Head.....	White Pine.....	580
	Scotch Pine.....	580
	White Spruce.....	250
	Hard Maple.....	580
	Soft Maple.....	650
	Walnut.....	20
	Butternut.....	20
	Chestnut.....	20
Manvers.....	Scotch Pine.....	3,000
	Jack Pine.....	3,000
	Poplar.....	15,000
Uxbridge.....	Scotch Pine.....	2,000
	Jack Pine.....	3,000
Windham.....	White Pine.....	10,000
	Scotch Pine.....	15,000

Additions to plots previously established:—

Albemarle West...	Scotch Pine.....	4,000
Beeton.....	Scotch Pine.....	2,000
	Cedar.....	3,000
	Soft Maple.....	2,000
	Elm.....	2,000
Camp Borden...	Scotch Pine.....	87,500
	Red Pine.....	3,000
	White Pine.....	13,000
	Jack Pine.....	62,500
Colborne.....	Scotch Pine.....	1,000
Darlington.....	Red Oak.....	1,000
	Scotch Pine.....	1,000
Elizabethtown...	Scotch Pine.....	1,000
Guelph.....	White Pine.....	5,000
	Scotch Pine.....	9,000
	White Spruce.....	1,000
	Soft Maple.....	500
Hamilton Parks...	White Pine.....	2,000
	Scotch Pine.....	8,000
	Elm.....	500
	Soft Maple.....	2,000
Mono.....	White Pine.....	15,000
	Scotch Pine.....	15,000
Mount Hope....	White Spruce.....	400
	Elm.....	300
	White Ash.....	400
	Walnut.....	400
Norfolk County...	White Pine.....	35,500
	Red Pine.....	20,500
	Scotch Pine.....	16,500
	Jack Pine.....	10,000
	Carolina Poplar.....	13,000
Waterloo.....	Scotch Pine.....	1,000

TREE SEED

The following seed was collected during the year:—

Species	Bushels
White Pine cones.....	897 3/8
Red Pine cones.....	3,998 3/8
White Spruce cones.....	428 5/8
Scotch Pine cones.....	119 2/8
Jack Pine cones.....	144 2/8
Red Oak.....	130 1/8
Cedar cones.....	70 3/8
Sugar Maple.....	9 5/8
Butternut.....	58 6/8
Walnut.....	214
Basswood.....	5 6/8
White Ash.....	86 3/8
Norway Spruce cones.....	174 3/8
Hemlock cones.....	52 7/8
Black Cherry.....	65 5/8
Yellow Birch.....	7
Hickory.....	4/8
Tamarack cones.....	5/8
Balsam cones.....	13 7/8
Larch.....	2/8
Red Cedar cones.....	7/8
White Birch.....	2 2/8
Black Locust.....	30 lbs.
Soft Maple.....	40 bush.
Elm.....	22 1/4 "

SUMMARY OF NURSERY STOCK FOR PLANTING, 1927

NURSERY	Conifers	Hardwoods	Totals
St. Williams.....	4,547,000	702,500	5,249,500
Orono.....	601,500	463,970	1,065,470
Midhurst.....	1,269,000	80,165	1,349,165
Sand Banks.....	81,550	18,700	100,250
Kemptville.....	32,500	2,000	34,500
Totals.....	6,531,550	1,267,335	7,798,885

SUMMARY OF NURSERY STOCK IN VARIOUS STAGES OF GROWTH

Nursery	Totals
St. Williams.....	18,363,000
Orono.....	5,866,400
Midhurst.....	8,957,852
Sand Banks.....	98,795
Kemptville.....	44,500
Total.....	33,330,547

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private planting (reforestation and windbreaks).....	2,291,764	400,707	98,078	2,790,549
Demonstration Plots.....	375,260	21,890	28,000	425,150
Northumberland Forest.....	125,025	37,550	.....	162,575
Vivian Forest.....	213,025	50	40,000	253,075
Hendrie Forest.....	252,000	.....	.....	252,000
Uxbridge Forest.....	140,000	.....	.....	140,000
Private Forests.....	130,000	63,600	.....	193,600
Northern Districts.....	117,200	100	.....	117,300
St. Williams.....	46,300	.....	125,600	171,900
Orono.....	3,400	2,850	.....	6,250
Midhurst.....	75,000	4,670	.....	79,670
Sand Banks.....	.....	8,000	.....	8,000
Totals.....	3,768,974	539,417	291,678	4,600,069

V.—FOREST SURVEYS

Area:

Consistent with the policy of the Ontario Forestry Branch to take stock of the forest resources of the province and to estimate the quantities of standing timber on areas prior to sales, the Forest Survey programme was extended in 1926 by the examination of approximately 3,420 square miles. Of this area 1,200 square miles were east of the Longlac pulp limit and south of the Canadian National railway or more definitely the country drained by the White Otter and Pic rivers.

The other area 2,220 square miles were in six individual blocks north and south from Sioux Lookout on the Canadian National railway. Five of these blocks are directly tributary to the English river. One is indirectly tributary, draining to Sturgeon lake and Sturgeon river. The six blocks are:—

- A. Immediately south of Sioux Lookout, 766 square miles.
- B. East from the above and east from the English River and north from Pine lake, 200 square miles.
- C. From the north shore of Sturgeon lake to the south boundary of timber berth Z B and north from timber berth Z B, a triangular area approximately four miles wide on the west and joining with timber berth Z B on the east, a total area of 170 square miles.
- D. North of the railway grant block 10 to Lac Seul and the Vermillion river, 290 square miles.
- E and F. East and west from the northeast arm of Lac Seul, 802 square miles.

Field Work:

The ground work consisted in running lines as far as practical at one-half mile intervals to determine the composition of the stand and the amount of standing timber. Eight men were employed on the Longlac area and sixteen on the English river areas. Work commenced June 2 and was completed September 25.

In addition to the above programme field work was continued to October 28. An intensive cruise of Bruton township, Haliburton county, was required and seven men were employed three weeks securing the information.

Aerial sketch maps are prepared covering both the Longlac and English river areas. During the season preliminary reports and estimates were submitted for blocks A, B, C, D, the other areas being left to be completed during the winter.

Investigative Work:

By the end of 1926, 77,025 square miles have been covered by forest surveys. From the results of these surveys it became apparent that definite forest regions existed within the northern part of the province and that these exhibited distinct forest features, in composition of the stands and volume production, to those areas adjacent. With the boundaries of the different regions delimited it naturally followed that a most valuable piece of investigative work could now be carried on in studying the forest growth conditions within each region, *i.e.*, first, to determine the different sites and the percentage of the total area occupied by each; and, secondly, to ascertain the volume growth by species on each site.

The practical application of this investigation will decide the rate of growth under existing natural conditions; the length of time for a stand to reach commercial maturity; and, finally, the amount of wood that may be cut annually in perpetuity without depleting the forest capital.

With the above objective in mind the party working east of Longlac in the White Otter and Pic River area were, in addition to their regular survey programme, able to identify the north and south boundaries of two regions and within these regions determine the percentage of the area in the different sites. Having done this, growth study work on representative plots was carried on in each site condition and the volume production and life history of the stands were determined at 10 year intervals from the time of their establishment. With this data worked up the amount of wood produced annually in the two regions mentioned is known and this amount should correspond to the annual cut that would be advisable. In the event of fire or other damages the quantity lost would have to be deducted from the annual cut.

Were this class of investigative work carried on over a period of years in conjunction with the regular survey programme and covering generally the forested area of the province, it would not only serve as a reliable basis for regulating the annual cut but would also serve in valuating immature stands and provide for the determination of a proper rate of expenditure for fire protection. This latter result would also have a direct benefit for pulp and paper companies for predicting when such immature stands may be cut and what yield might be expected.

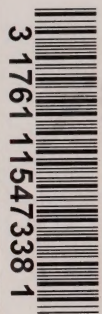
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